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ABSTRACT

Most students enjoy reading interesting selections about unusual plants, animals, insects, spiders, and other creatures. This book attempts to capitalize on the natural curiosity of students by introducing them to some of nature's most intriguing forms of life. The document is designed to provide students with background information, including facts and descriptions, about 19 unusual plants and animals. Each page of information is followed by a skills check which is designed to assess the student's comprehension of the main idea, vocabulary, and dictionary skills. The skills check is followed by an activity, including puzzles, creative writing assignments, games, and scavenger hunts. An answer key for all of the skills checks and activities is also provided. (TW)

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A Good Apple Activity Book for Grades 4-7

GOOD APPLE

SCIENTIFIC ENCOUNTERS OF THE CURIOUS KIND

Reading Activities that Explore Nature's Most Intriguing Life Forms

BY LYNN EMBRY

ILLUSTRATED BY NANCEE McCLURE

ED280740

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Scientific Encounters of the Curious Kind

by
Lynn Embry

Illustrated by Nancee McClure

Cover by Nancee McClure

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Contents

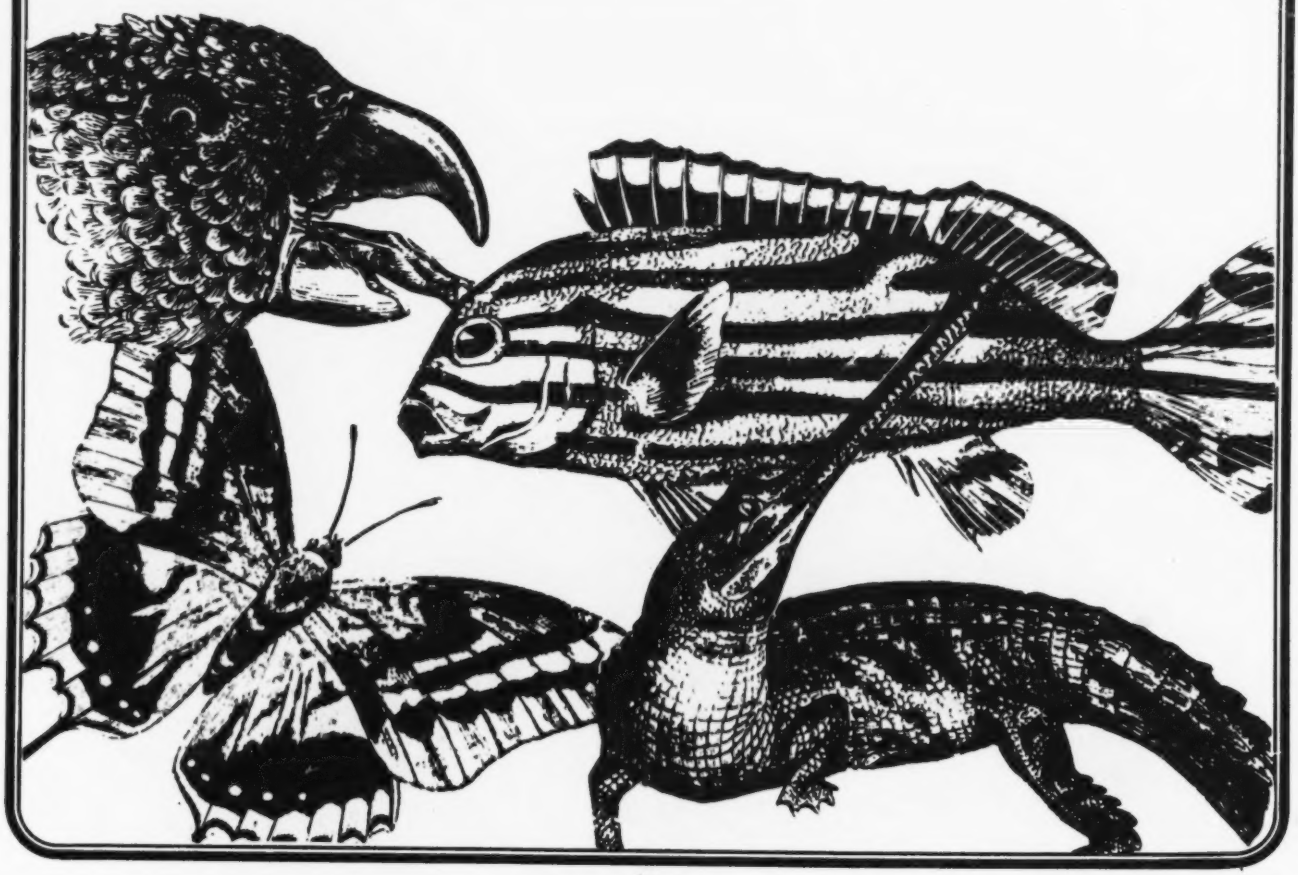
The Water Gun Fish 1
Activity: A Fishy Puzzle 3
A Walking Tree 4
Activity: Seeking the Evergreens 6
A Walking Leaf 7
Activity: A New You 9
The Wolf Spider 10
Activity: The Wolf Spider's Nickname 12
The Aye-aye 13
Activity: Fun with Graffiti 15
A Fishing Fish 16
Activity: An Alluring Billboard 18
The Water Bear 19
Activity: Pond Creatures 21
The Pack Rat 22
Activity: An Animal Autobiography 24
The Dancing Honeybee 25
Activity: A Puzzle to Buzz About 27
A Cannibal Plant 28
Activity: Insects Strike Back! 30
The Ribbonfish 31
Activity: A Sea Serpent 33
A Poison Pincushion 34
Activity: Time to Rhyme 36
The Bolas Spider 37
Activity: In Honor of the Bolas 39
The Amazing Hummingbird 40
Activity: In Reverse 42
The Love Vine 43
Activity: Vines and More Vines 45
The Hognose Snake 46
Activity: A Scavenger Hunt 48
The Loon 49
Activity: Family Groups 51
The Cormorant 52
Activity: Water Birds 54
The Caddis Worm 55
Activity: Metamorphosis 57
Key 58

Introduction

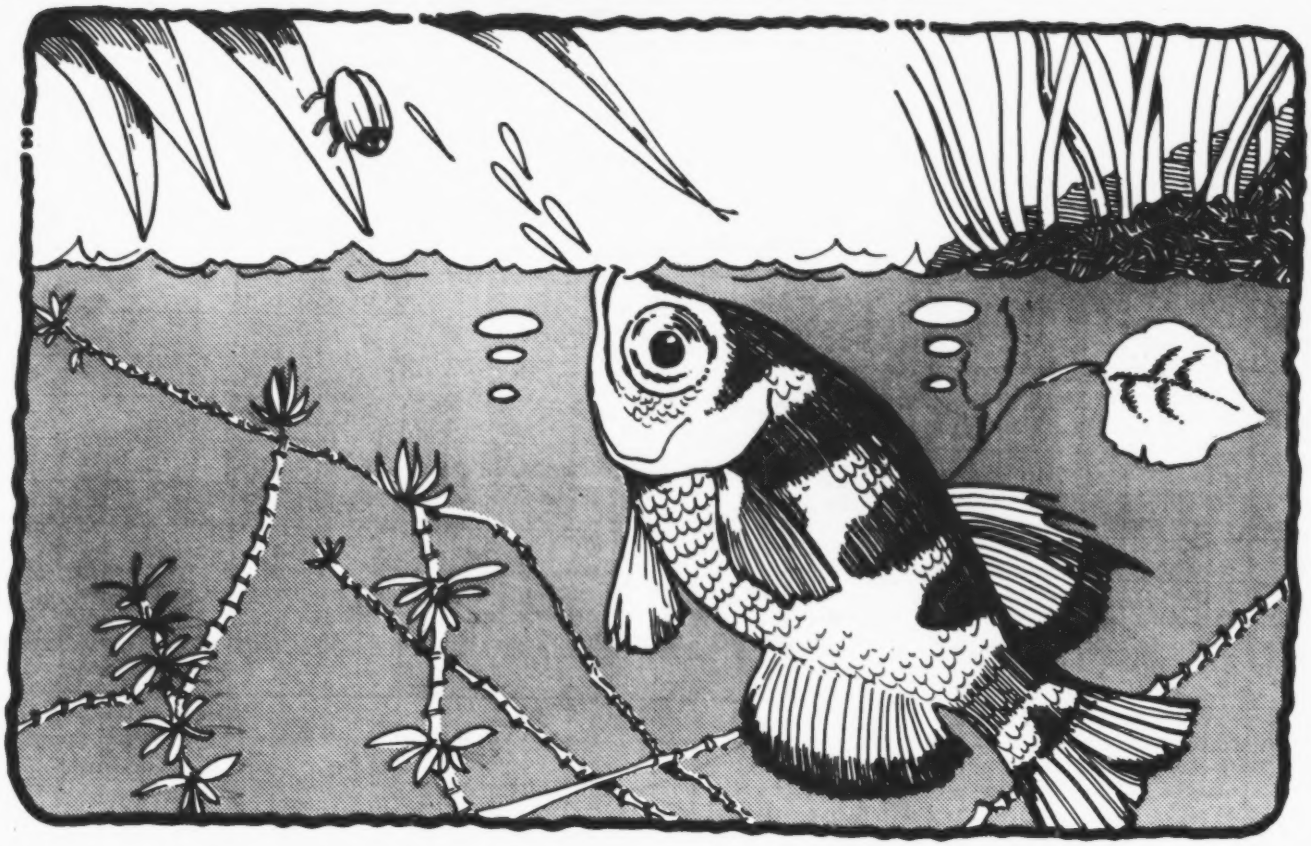
Most students enjoy reading interesting selections about unusual plants, animals, insects, spiders, and other creatures. This book capitalizes on the natural curiosity of students by introducing them to some of nature's most intriguing forms of life. As students read fascinating facts and descriptions, they will be acquiring knowledge that will help them be better informed should they encounter firsthand any of the strange and wonderful plants and creatures presented in the selections.

Each informational page is followed by a skills check. A consistent questioning format is utilized for practice in developing reading skills. Teachers may use each skills check to determine comprehension of the main idea, details, vocabulary, and dictionary skills.

A related fun sheet accompanies each topic. These sheets include a variety of puzzles, open-ended assignments, creative writing, and other supplementary activities. Each may be used as deemed appropriate in providing for individual differences within the classroom. It is hoped that the lessons presented will delight your students, help develop reading skills, and offer creative outlets as well as information.



The Water Gun Fish



What amazing fish can catch insects and spiders by shooting them down with a stream of water? The archerfish does this. The archerfish is a small striped fish, seldom exceeding seven inches in length when full-grown. It lives in the Indian and Pacific Oceans near Asia and Australia.

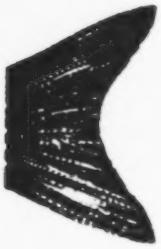
Archerfish learn to squirt water at an early age. Even very young archerfish can shoot water short distances. As they grow older they learn to shoot longer distances with greater accuracy.

The adult archerfish is able to hit insects five or six feet above the water. It can hit other targets as well. If it misses a target, it usually tries again with several rapid squirts. It forces water in the gill chambers through a groove in the top of its mouth. Scientists have been able to hold an archerfish in a shooting position and press the gill covers to cause water to spurt like a water gun.

The archerfish is usually an accurate shooter. Scientists say that is because of the way it aims. It swims underneath its target and aims. Then it brings itself to an almost vertical position and shoots out a stream of water. Humans who have been hit by water from the archerfish say that it stings.

Even though the archerfish is known for its ability to catch insects by shooting water, many of them seldom obtain their food that way. Perhaps they just enjoy squirting water.

Name _____



Directions: Circle the letters of the correct responses in items 1-4.

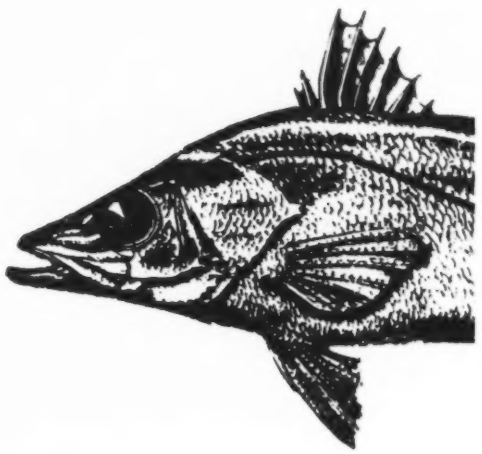
1. The story is mainly about
   a. a fish that shoots water
   b. a fish that likes water guns
   c. a fish that does tricks

2. Archerfish learn to squirt water when
   a. they are about seven inches long
   b. they are full-grown
   c. they are very young

3. In the story, a word that means "being more than" is
   a. accurate
   b. exceeding
   c. amazing

4. A synonym for the word "acquire" is
   a. shoot
   b. adapt
   c. obtain

5. Divide the following words into syllables. The first one has been done for you.
   a. amazing a/ maz/ ing
   b. several _____
   c. accurate _____
   d. striped _____
   e. distance _____
   f. underneath _____
   g. vertical _____
   h. position _____
   i. chambers _____
   j. ability _____

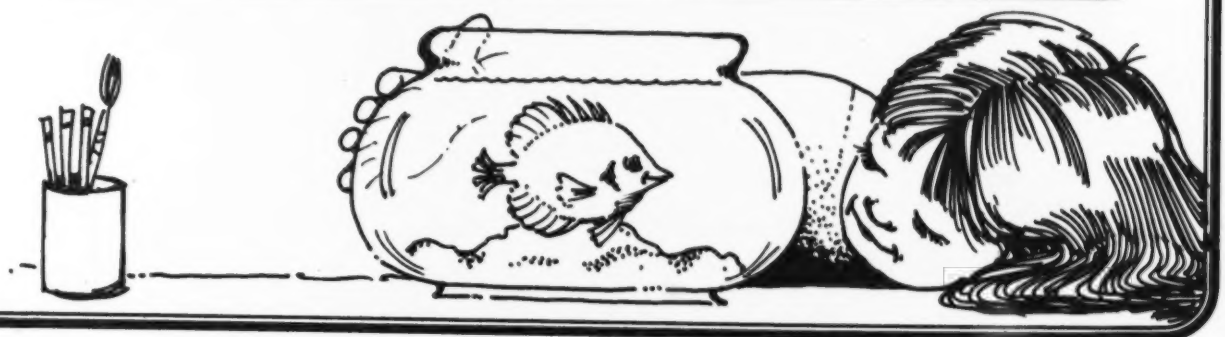


Name _____

A Fishy Puzzle

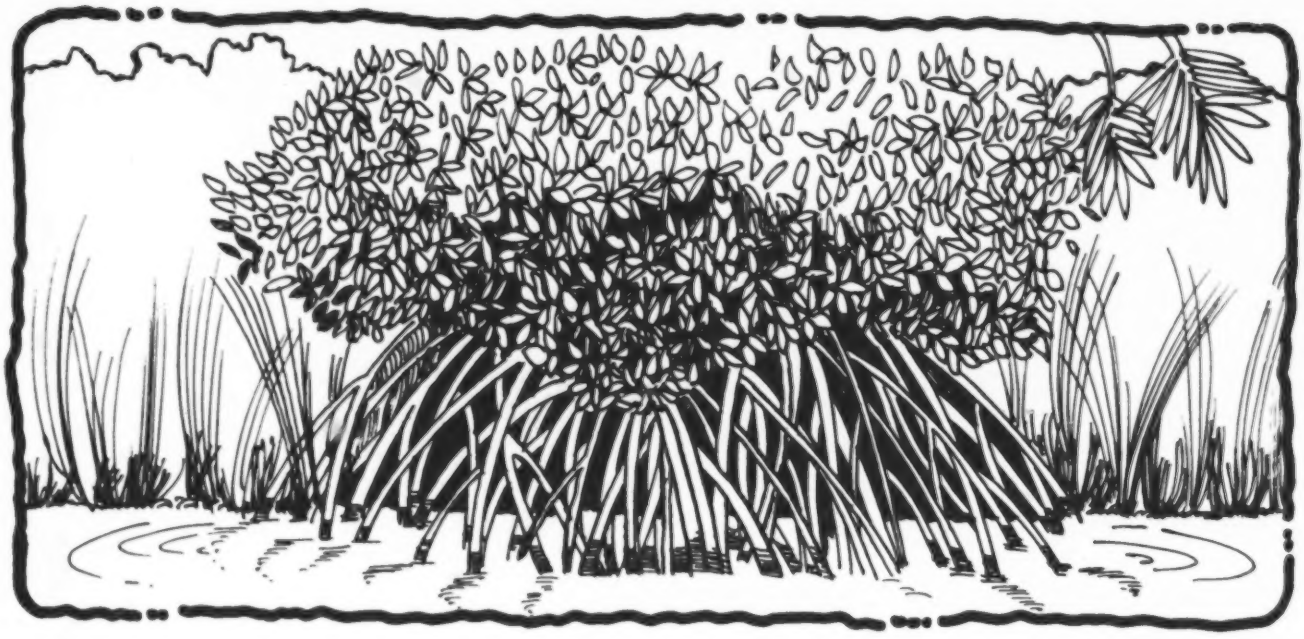
What fish because of its appearance has sometimes been confused with the archerfish? To discover the answer, cross out the boxes that do not contain a word with a prefix. Rearrange the remaining letters in correct order to spell the name of the fish.

instill **E**	impolite **Y**	under **O**	unsure **T**	uncle **S**
surely **M**	spoken **I**	remove **B**	imperfect **R**	sooner **T**
hopefully **A**	undo **U**	enable **F**	utter **D**	misty **E**
preview **T**	happily **H**	station **L**	reason **N**	unmarked **L**



3

A Walking Tree



Have you ever heard of a walking tree? In southern Florida there is a type of evergreen tree called the red mangrove that borders the coastal waters. This tree has changed shorelines by putting out roots and moving out to sea. The twisted roots arch outward and step further into the ocean. As the roots move further out, sand collects among them. The roots become more firmly anchored as more sand and sediment is deposited. Ground is actually created where only water existed.

The mangrove, a hardy tree, is one of the very few flowering plants that can grow in salt water. Sometimes hurricanes and tropical storms destroy its leaves and branches. After the storms pass, new foliage soon appears, and the mangrove continues to send root shoots out to sea.

Although there are many kinds of mangroves, only the red mangrove is found in Florida. It is easily recognized by its mass of tangled roots exposed above the water. It grows to be about 25 feet tall. This unusual tree has tiny, yellow flowers and reddish-brown berries. Each berry contains a seed that sprouts into a root while still attached to the tree. The root hangs down from the tree like a dart, and when the time is right, it drops into the water. Soon new leaflets sprout from the anchored root, thus beginning another mangrove.

The mangrove oyster makes its home among the twisted roots of the red mangrove. Tides bring the oysters to the trees where they attach themselves to the roots.

The red mangrove tree is also useful to man. Its bark is used in tanning substances and dyes. Its wood is sometimes used in making furniture products.

Name _____

Skills Check

Directions: Circle the letters of the correct responses in items 1-4.

1. The story is mainly about
   a. mangrove trees
   b. evergreen trees
   c. coastal trees

2. One creature that lives among the roots of the red mangrove tree is
   a. a fish
   b. an oyster
   c. a snail

3. A word in the story that means "tree leaves" is
   a. evergreen
   b. shoots
   c. foliage

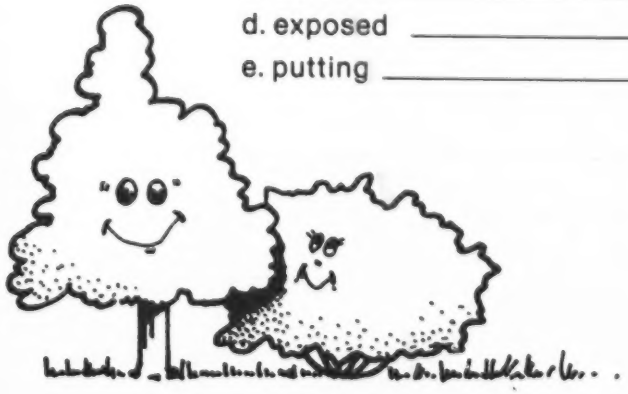
4. In the story "exposed" means
   a. displayed
   b. hidden
   c. protected

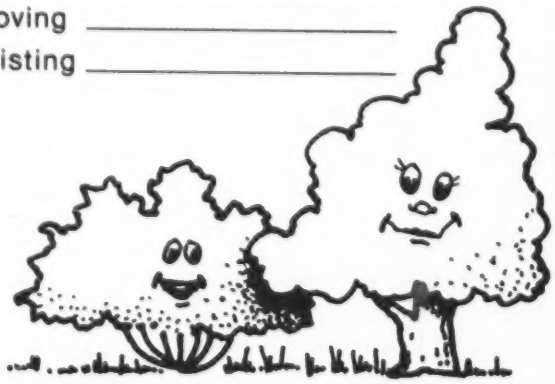
5. Circle the accented syllable in each word below.

a. tanning	e. anchored
b. mangrove	f. tangled
c. unusual	g. appears
d. destroy	h. hardy

6. Write the root word for each of the following words:

a. unusual _____	f. coastal _____
b. beginning _____	g. actually _____
c. called _____	h. walking _____
d. exposed _____	i. moving _____
e. putting _____	j. existing _____





Name _____

Seeking the Evergreens

Directions: The mangrove is a member of the evergreen family. That means its leaves remain green for more than one growing season. Circle the names of 20 other evergreen trees in the puzzle below.

S W H I T E S P R U C E G E N O R
T A C E S T C E D A R S O N E L B
O E O M N H O L L Y T O O I B A A
L N U A R E D S P R U C E P S N L
S I R G I C T L O C H I L E A R S
E P O N G A B A N R E H O T N I A
T A H O D R E S D O N E B I D F M
R I P L C O R H P T I M L H P S F
I N M I M B T P I B P L O W I A I
J I A A T G A I N L K C L N N L R
V G C K R C S N E I C C L R E G T
O R N O Y M H E U W A K Y E Z U F
S I L T O R S P N L J T P T E O E
E V R O R E D P I N E D I S E D N
L T O L A R C H C N J K N A L O Y
T J K O M N B D O N E P E E T D Y

WORD BANK

CEDAR	MAGNOLIA	WHITE SPRUCE	HOLLY
RED PINE	RED SPRUCE	VIRGINIA PINE	LOBLOLLY PINE
CAROB	DOUGLAS FIR	BALSAM FIR	WHITE PINE
POND PINE	SLASH PINE	HEMLOCK	LARCH
CAMPHOR	PITCH PINE	JACK PINE	SAND PINE

JUST FOR FUN...If you were a walking tree, where would you go? Write a paragraph about it.

A Walking Leaf

Nature has expertly camouflaged many of her creatures as a form of protection, but one of the most cleverly guarded insects is the walking leaf. A relative of the praying mantis, the walking leaf is an excellent impersonator of a tree leaf. It makes its home in Africa, Southeast Asia, Australia, Ceylon, and various South Pacific islands. This remarkable insect resembles a tree leaf so much that it is often difficult to detect.

The full-grown walking leaf has a leaf shape complete with the markings of veins. It is about three inches long. It is green with light yellow highlights, enabling it to easily hide among the leaves of a tree. Its six legs are like smaller leaves with yellow, ragged edges. Sometimes the legs of a walking leaf insect look like leaves that have been nibbled upon by insects.

The walking leaf is a leaf-eating insect. Its clever camouflage is its only protective defense from birds and other insects. It feeds on leaves at night and rests during the daytime.

Nature has camouflaged the walking leaf in all stages of its development. In the egg stage it looks like a tiny, shriveled seed. After the young walking leaf hatches from the seed, it looks much like a shiny, red berry. It has no wings in this stage.

Later, it develops into the adult with its leafy appearance. The wings look like a small leaf on top of a larger leaf. In the adult phase, the insect's impersonation act takes on an additional feature. The walking leaf can actually imitate a living tree leaf. It does this by wiggling its body back and forth to look like a leaf blowing in the breeze. It seems to know when to be still and when to act like a leaf.

Name _____

Skills Check

Directions: Circle the letters of the correct responses in items 1-4.

1. The story is mainly about
   a. an insect that only looks like a leaf
   b. an insect that looks and acts like a leaf
   c. a camouflaged leaf

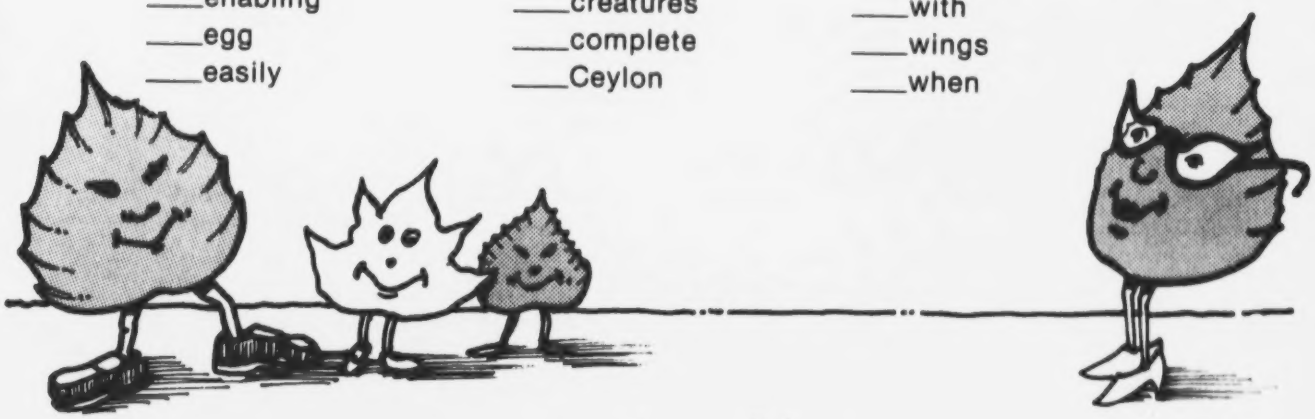
2. The walking leaf
   a. has no method of defense
   b. defends itself like the praying mantis
   c. depends upon camouflage for defense

3. In the story "impersonator" means
   a. imitator
   b. replica
   c. duplicate

4. In the story a synonym for "discover" is
   a. detect
   b. imitate
   c. camouflage

5. Number each group of words in alphabetical order.

____stage	____remarkable	____insect
____shriveled	____relative	____imitate
____still	____resembles	____impersonator
____smaller	____ragged	____its
____shape	____red	____is
____expertly	____camouflaged	____walking
____excellent	____clever	____wiggling
____enabling	____creatures	____with
____egg	____complete	____wings
____easily	____Ceylon	____when



Name _____

A New You

Nature has given the walking leaf a clever camouflage. If you could be disguised in some way, what would it be? Draw a picture of your new look and describe the changes.

The Wolf Spider

The wolf spider is an interesting member of the arachnid family. It resembles a tarantula, but it is much smaller. It has a long, broad, hairy body and eight long legs suited for running. Its eight eyes are set in three rows. It has two poisonous fangs that enable it to be a savage hunter.

The wolf spider is found in many parts of the world, but it is not found in a web like most spiders. Instead, the wolf spider digs a hole in the ground and piles sticks around the entrance. The hole is about eighteen to twenty inches deep and about the size of a nickel in diameter. This burrow becomes its home and lookout tower.

During feeding time, the wolf spider sits on top of the sticks at the entrance to the burrow and watches for insects that come its way. Whenever an insect gets close enough, the wolf spider pounces upon it. Sometimes it must chase an insect before capturing it. When the wolf spider catches an insect, it sinks its poisonous fangs into its victim. It often takes the insect into its burrow where it feeds upon it.

There are about 2,000 kinds of wolf spiders throughout the world. Even though the wolf spider is fierce, the female is considered to be a very good mother. She looks after her eggs and cares for her babies. She lays the eggs in a gray, silk sac and attaches it to her body. Then she drags it wherever she goes. When her babies hatch, they climb onto her back for a ride.

Name _____

Skills Check

Directions: Circle the letters of the correct responses in items 1-4.

1. The story is mainly about
   a. a spider's burrow
   b. a savage spider
   c. a type of tarantula

2. The wolf spider lives in
   a. a burrow
   b. a web
   c. a tower

3. In the story a word that means "heap" is
   a. attaches
   b. piles
   c. drags

4. In the story a synonym for "savage" is
   a. fierce
   b. poisonous
   c. wolf

5. The following words have more than one meaning. Find each word in the dictionary and write the meaning as it was used in the story.
   a. burrow _____
   b. sinks _____
   c. savage _____
   d. feeds _____
   e. parts _____

6. If the guide words on a dictionary page are "spider" and "spindle," place X in the blank by each word that should appear on the same page.

___ 1. spike	___ 7. spin
___ 2. sphere	___ 8. spinach
___ 3. spill	___ 9. speed
___ 4. spade	___ 10. species
___ 5. spinner	___ 11. spell
___ 6. splinter	___ 12. spry

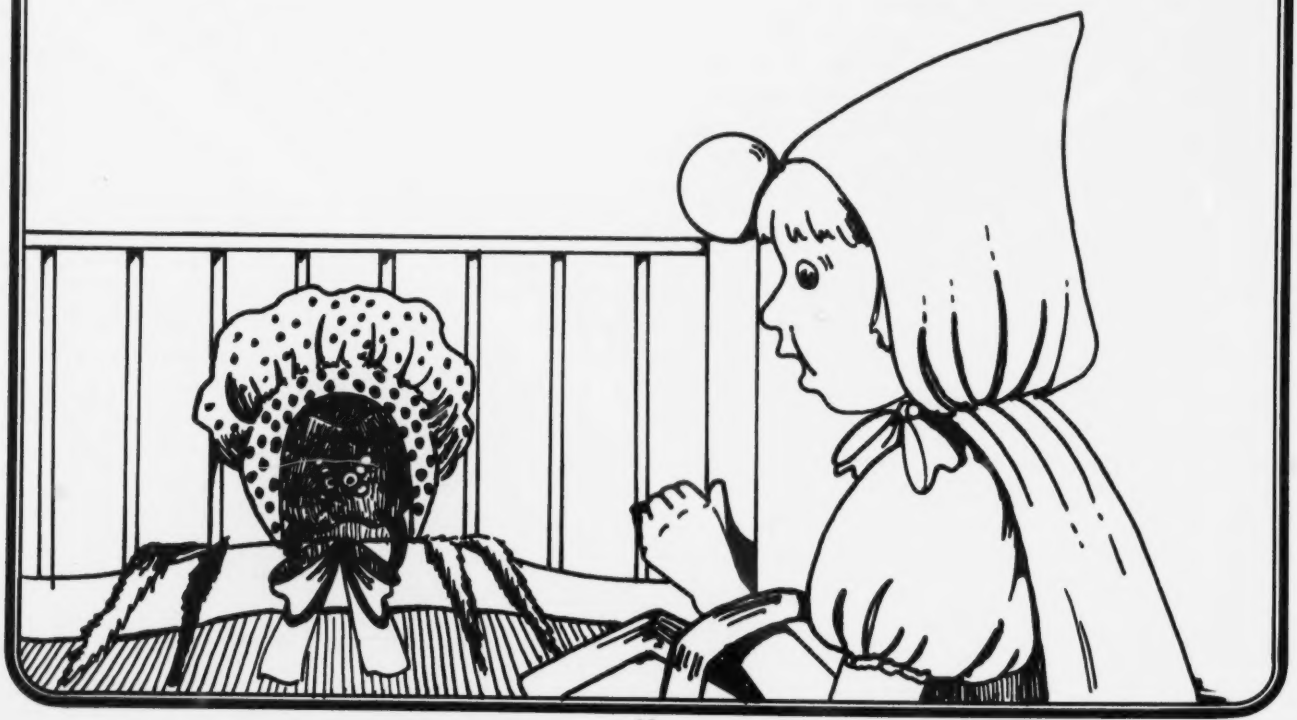
Name _____

The Wolf Spider's Nickname

Directions: You can discover the nickname of the wolf spider by finding a synonym for each word below as it was used in the story. The letters inside the circles will spell the nickname.

1. close ___ ___ ___ ◯
2. chase ___ ◯ ___ ___ ___ ___
3. attach ___ ___ ___ ___ ___ ◯
4. often ___ ___ ___ ___ ___ ___ ◯ ___ ___ ___
5. savage ___ ___ ___ ___ ___ ◯ ___ ___ ___
6. springs ___ ___ ___ ◯ ___ ___ ___
7. sticks ___ ___ ___ ◯ ___
8. kinds ___ ___ ___ ___ ◯
9. enable ___ ___ ___ ◯
10. parts ___ ___ ___ ___ ◯ ___ ___ ___
11. found ___ ___ ___ ___ ___ ___ ◯
12. poisonous ___ ◯ ___ ___ ___ ___
13. entrance ___ ___ ___ ◯ ___ ___ ___

Another name for the wolf spider is _____.



12

The Aye-aye

A rare creature very few people have ever seen is the aye-aye. This endangered species lives in the forests of Madagascar. It builds a nest of dried leaves and twigs in a tree. The aye-aye belongs to the lemur family. It looks much like a squirrel, but its hands and feet resemble those of a monkey or ape. It is the size of a cat and has thick, dark fur. It has a light-colored face with large eyes.

The aye-aye is a nocturnal animal, sleeping in the day and hunting for food at night. Its diet consists mainly of insects and caterpillars which it digs out from beneath the bark of trees. It also feeds on the juices of plants.

The aye-aye is usually a quiet animal, but it can make a noisy cry. Some say the cry sounds almost human-like. The people of Madagascar have handed down stories about these strange creatures. One story claims that each aye-aye is a reincarnated ancestor. That may have started because of the strange cry of the animal, as well as the appearance of the hands with fingers and opposing thumbs.

In the late 1960's the aye-ayes almost disappeared. The aye-aye population has remained small, due to the fact that a mother aye-aye gives birth to only one aye-aye per year. The government of Madagascar forbids hunting the aye-aye in an effort to protect the remaining population. Special reserves have been established for the preservation of this unusual creature.

Name _____

Skills Check

Directions: Circle the letters of the correct responses in items 1-4.

1. The story is mainly about
   a. a member of the lemur family
   b. a type of squirrel
   c. a reincarnated creature

2. The aye-aye roams about
   a. in the daytime
   b. at night
   c. in the early morning

3. In the story the word "preservation" means
   a. existence
   b. protection
   c. observation

4. A word that means "active at night" is
   a. established
   b. reincarnated
   c. nocturnal

5. Read the phonetic spellings of certain words taken from the story. Write the correct spelling of each.
   a. spē′shēz _____
   b. strānj′ _____
   c. an′ses-terz _____
   d. krī′ _____
   e. noi′zē _____
   f. dis- ə -pird′ _____
   g. dü _____
   h. fing′gerz _____
   i. kwī ət _____

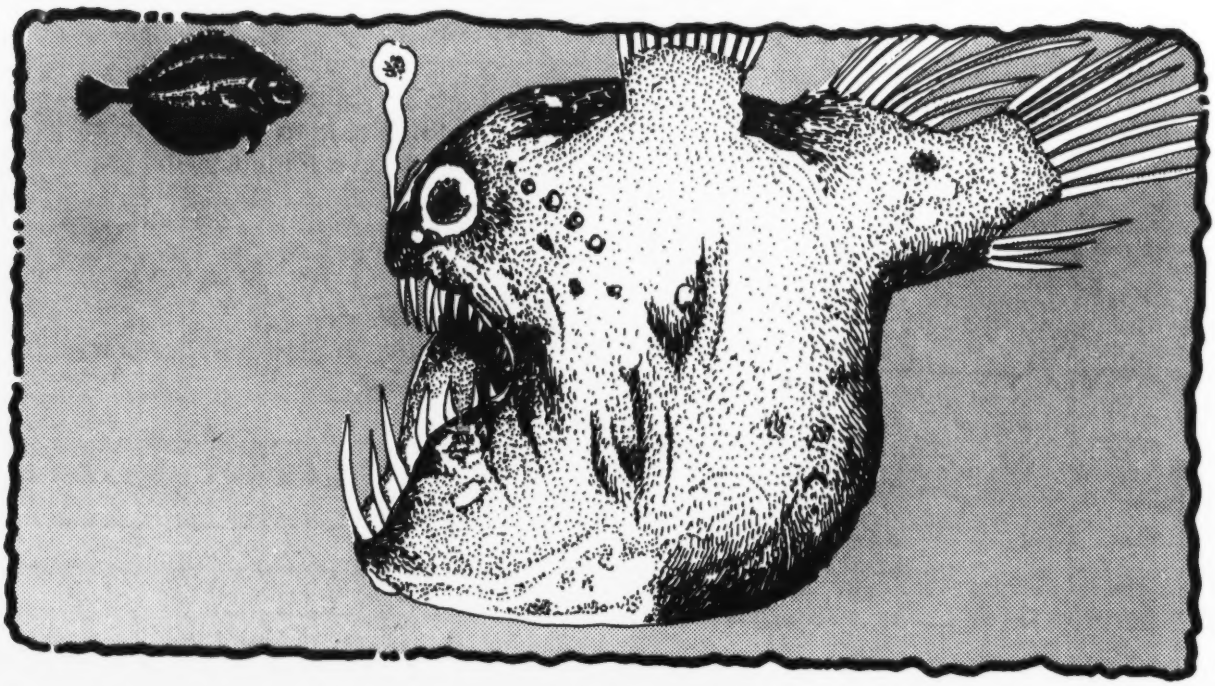
Name _____

Fun with Graffiti

Directions: Pretend you are an aye-aye and have suddenly discovered that your opposing thumb enables you to be able to write. Think of all the things you would like to write. Add your mark to the graffiti below.

Love an aye-aye!

A Fishing Fish



Have you ever heard of a fish that fishes for fish? There is a fish that has done this longer than man. It is called the anglerfish. Actually, there are more than two hundred different species of anglerfish, but they all are alike in one way. They all have some kind of fishing appendage.

The deep-sea anglerfish has a type of fishing line attached to the top of its head. It wiggles a lure-like end to attract other fish. One deep-sea anglerfish even has a lighted bait inside its mouth. The anglerfish waits until a fish gets close enough to grab with its mouth.

The teeth of the anglerfish are sharp and often pointed backward to prevent escape of its victim. Sometimes an anglerfish swallows a fish that is too large. The anglerfish is not always able to release a large fish because it gets caught on its backward-pointing teeth. Both fish may die when this happens.

Only the female fish has the fishing apparatus. In fact, at first scientists seeking the male anglerfish did not recognize it because it looks so different. It is about one-third the size of the female, and it is found joined to the female like a parasite. The eyes and other organs of the male anglerfish degenerate after he becomes a parasite to his mate. He stays in one place, wherever he happens to take hold at first. It may be on her head, her stomach, her back, or even her gill covers.

The female anglerfish spawns her eggs in the ocean. The eggs float to the surface and later hatch. In the early stage the males and females look alike. When they grow older and begin to change, the anglerfish move from the surface to greater depths of the ocean.

Name _____

Skills Check

Directions: Circle the letters of the correct responses in items 1-4.

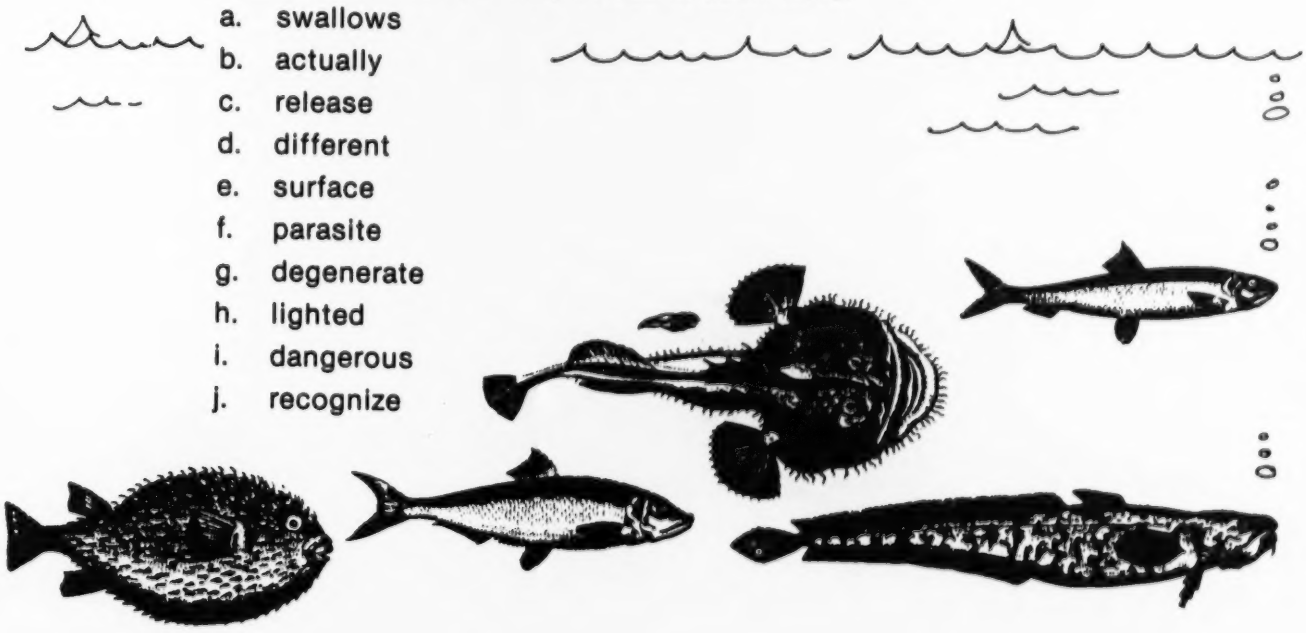
1. The story is mainly about
   a. the angelfish
   b. the anglerfish
   c. the deep-sea fish

2. The fish in the story is
   a. predatory
   b. harmless
   c. curious

3. The word "degenerate" means
   a. to change
   b. to deteriorate
   c. to become more specialized

4. A synonym for "appendage" is
   a. lure
   b. attachment
   c. line

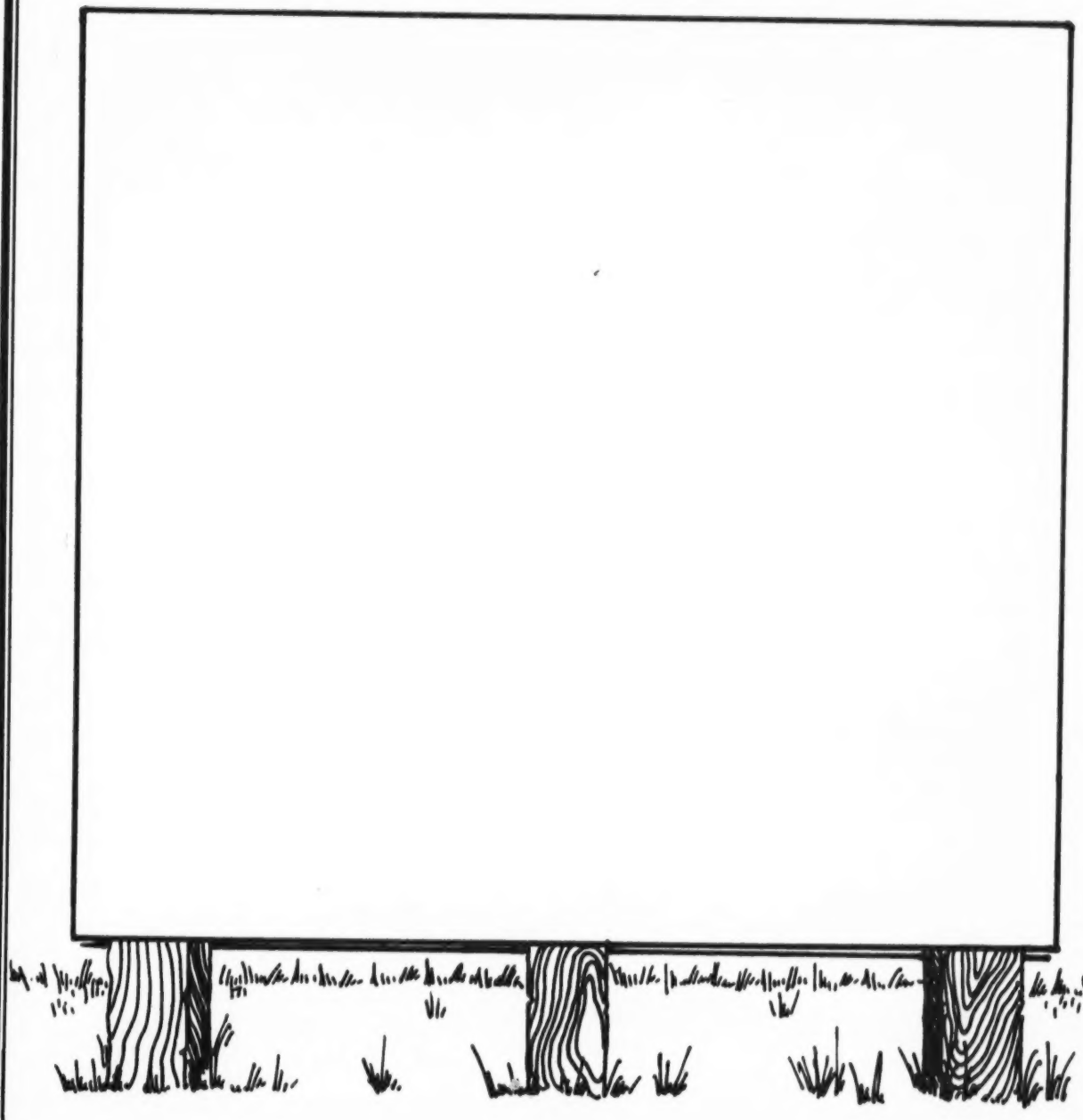
5. Divide the following words into syllables. Then underline the syllable that receives the primary stress in each word.
   a. swallows
   b. actually
   c. release
   d. different
   e. surface
   f. parasite
   g. degenerate
   h. lighted
   i. dangerous
   j. recognize



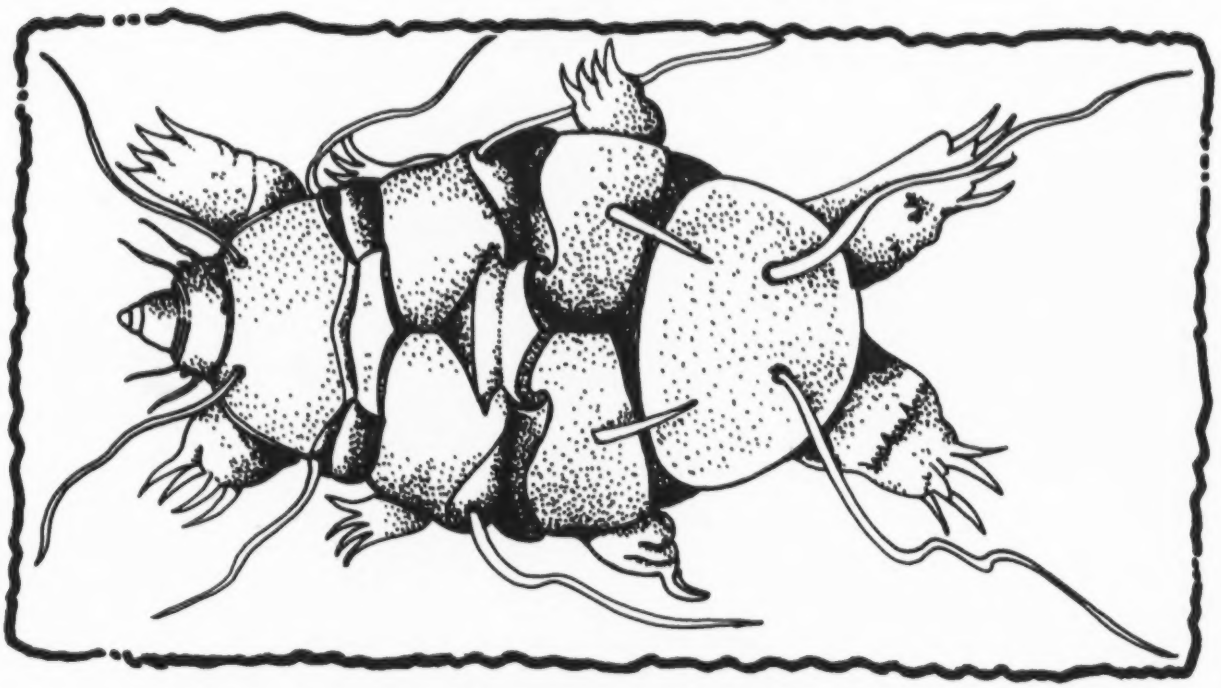
Name _____

An Alluring Billboard

Directions: You have been given the opportunity to design a special billboard in recognition of the anglerfish. Think about the information you will feature. Create a drawing of your billboard below.



The Water Bear



One truly fantastic creature found in many ponds throughout the world is the water bear. The water bear is a relative of the spider family, but it is very different. It does not look like a spider at all.

It is a very tiny creature that is best observed with a microscope. The largest water bear is about 1 mm long, but most are much smaller. The water bear has a well-developed head and a body comprised of four fused sections. It has claw feet that are used for holding onto pond vegetation. Its mouth contains a hollow stylet used to get nourishment from the walls of plants. It has a well-developed nervous system that enables it to respond quickly to escape danger. It does not have a heart or blood. It doesn't even breathe. Instead, the water bear absorbs air through its skin.

This unusual creature has the amazing ability to dry out and remain alive. When in a dry state, it can endure extreme temperatures. Many water bears have been dried out for years at a time and revived in a couple of hours. This condition of life in a dried state with suspended animation is called cryptobiosis or anabiosis. The water bear appears lifeless in its dry state, but the life processes are only greatly slowed.

It has been learned that cryptobiosis prolongs the life of a water bear. An active water bear that does not go into cryptobiosis lives only a few months. The water bear that lives in a shallow pond that often dries up may go into cryptobiosis many times. Its life would be greatly shortened without the ability to do this. With rain, the reviving drops of water bring the water bear back to active existence. The water bear that does practice cryptobiosis can be expected to live for approximately seventy years.

Name _____

Skills Check

Directions: Circle the letters of the correct responses in items 1-3.

1. The water bear is a
   a. relative of the spider family
   b. relative of the bear family
   c. relative of the insect family

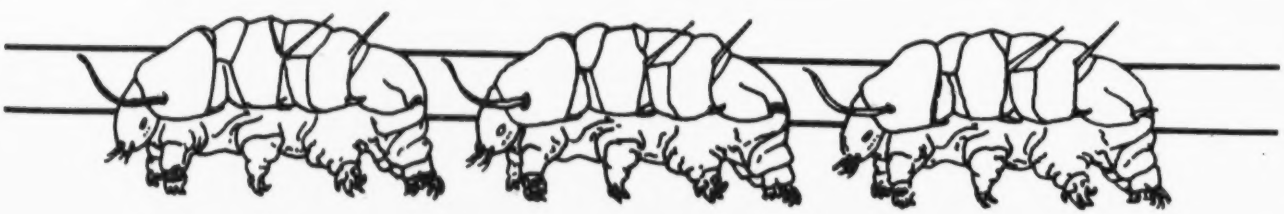
2. Cryptobiosis enables the water bear to
   a. be seen with a microscope
   b. live in ponds
   c. live longer than otherwise

3. In the story the word "endure" means
   a. withstand
   b. keep
   c. save

4. Divide the following words into syllables:

a. fantastic	f. absorbs
b. cryptobiosis	g. temperatures
c. condition	h. endure
d. relative	i. amazing
e. different	j. practice

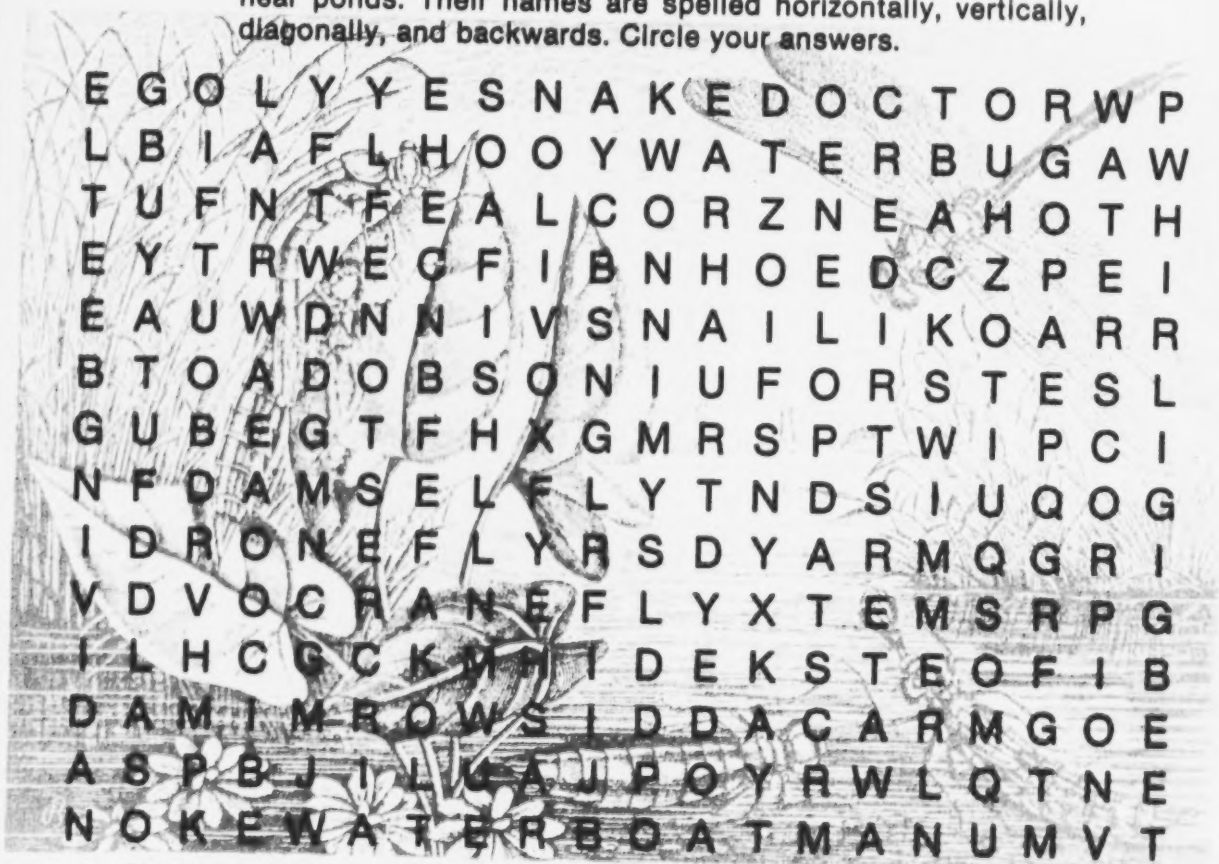
5. Read each phonetic spelling and write the correct spelling of each word on the blank.
   a. wöt´ər _____
   b. ri-mān´ _____
   c. lərnd´ _____
   d. ek-strēm´ _____
   e. fyü´ _____
   f. krē´chər _____
   g. bled´ _____
   h. kən-dish´ən _____



Name _____

Pond Creatures

Directions: The puzzle contains the names of 24 creatures that live in or near ponds. Their names are spelled horizontally, vertically, diagonally, and backwards. Circle your answers.



E G O L Y Y E S N A K E D O C T O R W P
L B I A F L H O O Y W A T E R B U G A W
T U F N T F E A L C O R Z N E A H O T H
E Y T R W E C F I B N H O E D C Z P E I
E A U W D N N I V S N A I L I K O A R R
B T O A D O B S O N I U F O R S T E S L
G U B E G T F H X G M R S P T W I P C I
N F D A M S E L F L Y T N D S I U Q O G
I D R O N E F L Y R S D Y A R M Q G R I
V D V O C R A N E F L Y X T E M S R P G
I L H C G C K M H I D E K S T E O F I B
D A M I M R O W S I D D A C A R M G O E
A S P B J I L G A J P O Y R W L Q T N E
N O K E W A T E R B O A T M A N U M V T
J T U R T L E T R E T L E W O R M R O L
B O O T R E S B P E V U C E K A N S N E

WORD BANK

FROG
DOBSON
TURTLE
FISH
CRANE FLY
DAMSELFLY
MOSQUITO
DIVING BEETLE
WORM
CADDIS WORM
MINNOW
TOAD
TADPOLE
BACKSWIMMER
SNAKE
WATER BUG
STONEFLY
SNAIL
WATER STRIDER
WATER SCORPION
WATER BOATMAN
WHIRLIGIG BEETLE
DRONEFLY
SNAKE DOCTOR

The Pack Rat

You may have heard someone referred to as a pack rat. The label is sometimes given to a person who saves junk and other unneeded items. The name stems from the similar habits of a small, furry animal called a pack rat.

The pack rat is a curious creature known for its habit of gathering all sorts of odds and ends and carrying them back to its nest. The creature usually rests in the daytime and roams at night looking for seeds, nuts, roots, and fruits to eat. The inquisitive animal will carry off small items, such as bottle tops, mirrors, pebbles, pinecones, and string. Sometimes it will drop its newly found treasure in favor of another object that catches its attention. It has been known to enter human residences and depart with utensils, coins, and jewelry. The habit of leaving behind one item in exchange for another has earned the animal the nickname of "trade rat."

When grown, the pack rat is about eight inches long, not including the tail. It resembles a house rat, but it has softer fur and a scaly tail. It has short legs, large ears, and black eyes. It is gray with a white belly.

The pack rat makes its home in deserts, mountains, and other parts of North and Central America. It is considered to have cleaner habits than a house rat and will not live in garbage dumps or other filthy places.

The next time you see someone taking home junk, you may think of the pack rat. It has been said that one man's junk is another man's treasure. To the pack rat, both four-legged and two-legged, the statement holds true.

Name _____

Skills Check

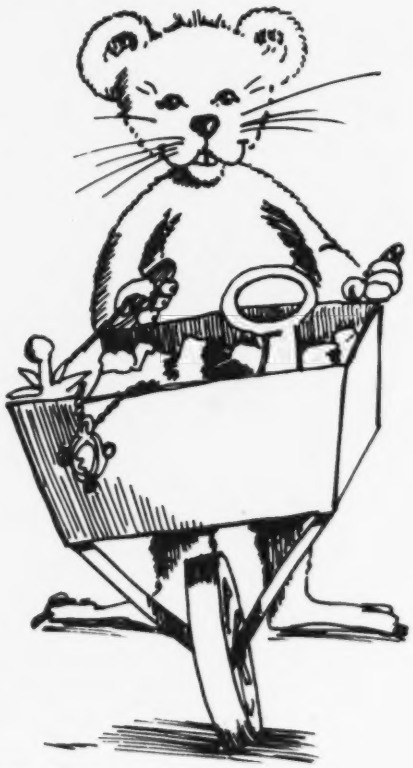
Directions: Circle the letters of the correct responses in items 1-4.

1. The story is mainly about
   a. an animal that gathers assorted junk
   b. a person who saves junk
   c. a type of house rat

2. The pack rat lives in
   a. garbage dumps
   b. deserts and mountain areas
   c. houses

3. In the story a word that means "various" is
   a. odds
   b. assorted
   c. referred

4. A synonym for "unnecessary" is
   a. unneeded
   b. junk
   c. inquisitive



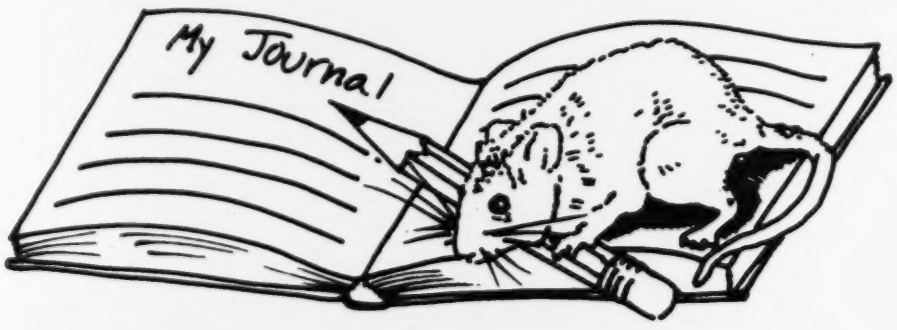
5. Look up the following words in a dictionary. Write the guide words that you find for each.
   a. curious _____
   b. foliage _____
   c. attention _____
   d. treasure _____
   e. resembles _____

6. Write the entry word listed in your dictionary that follows each word below.
   a. residence _____
   b. habit _____
   c. favor _____
   d. nickname _____
   e. label _____

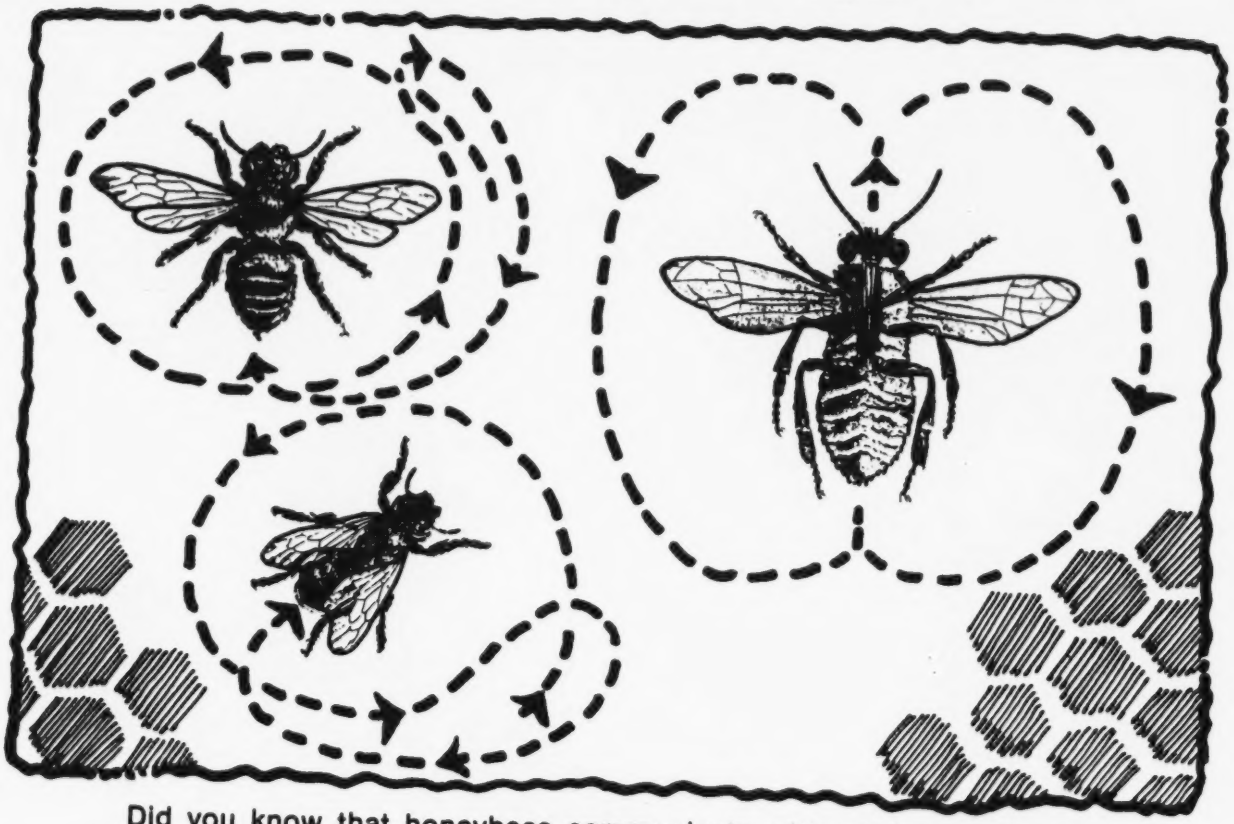
Name _____

An Animal Autobiography

An autobiography is a story of one's life written by the person himself. Pretend you are a pack rat. Write your life story up until the present time. Tell some interesting facts and experiences.



The Dancing Honeybee



Did you know that honeybees communicate with each other through dancing? For a long time scientists knew that honeybees danced, but they did not understand the significance of the dances. Now it is realized that the dances are used to communicate information.

Different dances communicate different information. Some dances indicate the location of a spot for a homesite. Some indicate whether food is nearby or further away. The more circles the bee dances, the greater the distance to the nectar. Even the speed of the dance tells how near a source of food is. The greater the distance to the food source, the slower the dance.

The dances are done by worker bees on the surface of the honeycomb. Usually the dances are observed after the workers return from finding food. A returning worker may dance a specific pattern. Then the other workers join in the same dance. The dancing worker then regurgitates nectar that the other bees smell or sample. Next, the bees may fly to the same source of food.

Nobel prize winner Karl von Frisch of Austria discovered that when food is near, the bees perform round dances. When the food is further away, the bees waggle their bodies between dancing circles.

Frisch also discovered that honeybees communicate direction as well as distance. If the straight part of the dance points upward, the source of food is toward the sun. If it is downward, it is opposite the position of the sun.

Name _____

Skills Check

Directions: Circle the letters of the correct responses in items 1-4.

1. The main idea of the story is
   a. honeybees like to dance
   b. honeybees dance for food
   c. honeybees communicate through dance patterns

2. The story implies
   a. queen bees cannot dance
   b. honeybees possess some intelligence
   c. many kinds of dances are performed at the same time

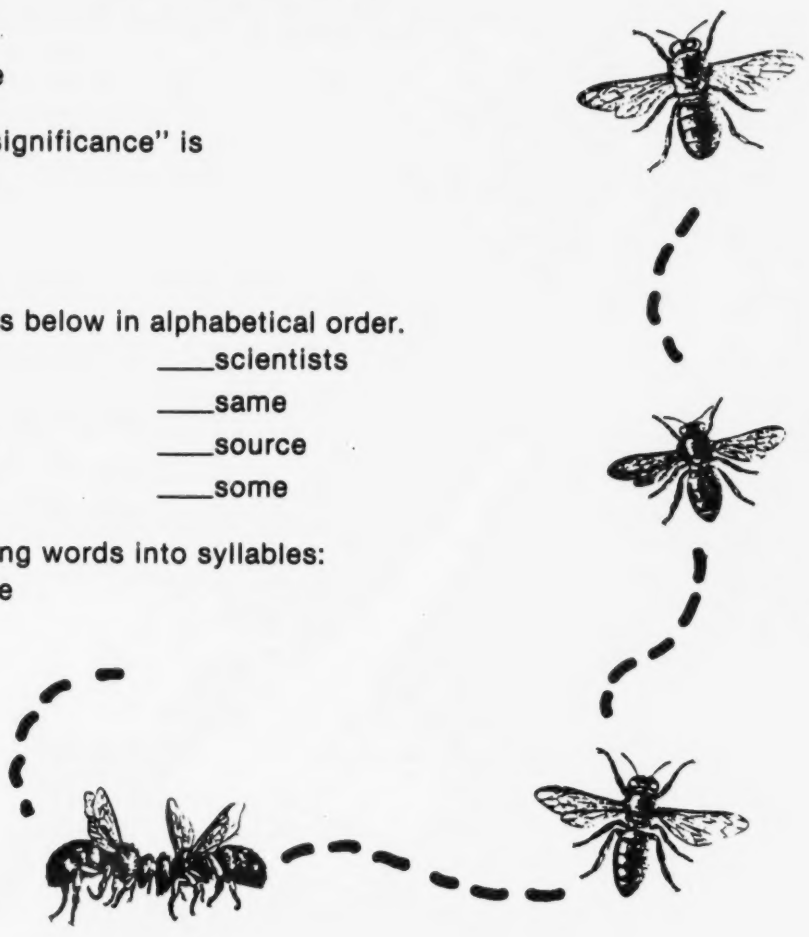
3. A word that means "to move from side to side" is
   a. dance
   b. waggle
   c. communicate

4. A synonym for "significance" is
   a. importance
   b. feeling
   c. emblem

5. Number the words below in alphabetical order.

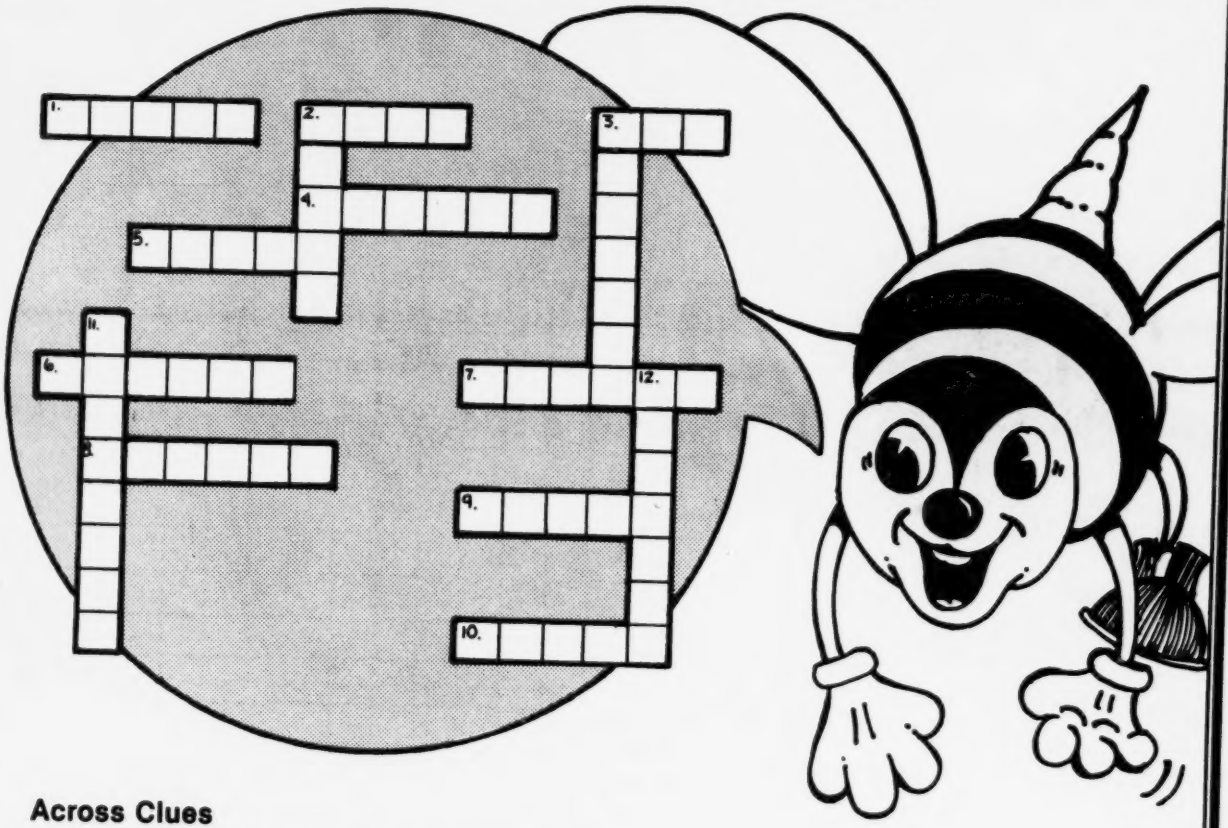
____surface	____scientists
____sample	____same
____significance	____source
____specific	____some

6. Divide the following words into syllables:
   a. communicate
   b. distance
   c. usually
   d. specific
   e. nectar
   f. realized
   g. waggled



Name _____

A Puzzle to Buzz About



Across Clues

1. The female bee that lays eggs
2. A colony of honeybees
3. Number of sides in a honeycomb cell
4. Sweet liquid in flowers
5. Number of kinds of honeybees
6. A bee that performs labor
7. The middle section of a honeybee's body
8. Powdery dust in flowers
9. A method used by bees to communicate
10. The stage of a honeybee before it develops into an adult

Down Clues

2. What honeybees make
3. What a honeybee defends itself with
11. The kind of eyes honeybees have
12. One of a pair of sensory organs of the honeybee

A Cannibal Plant

Did you know there are plants that devour living insects? One particular plant that traps and eats many kinds of insects is the pitcher plant. The pitcher plant grows in damp places, such as bogs and marshes in various parts of the United States. It is especially found east of the Rocky Mountains. It is a perennial plant also known as the sidesaddle flower, the huntsmen's cup, and the Indian dipper. Its flowers are globe-shaped in colors of red, yellow, and purple. Each flower grows on a tall, slender stem.

The pitcher plant has hollow pitcher-shaped leaves that are used to capture insects. A fragant odor first attracts insects to the plant; but when they crawl along the top of the pitcher, they do not seem to realize they are in danger. The inside of each pitcher or tube is slippery, and insects that crawl inside are unable to get out. The pitcher plant secretes a narcotic that causes the insect to lose consciousness. Then digestive juices in the leaf begin dissolving the insect's body for nourishment.

An unusual kind of pitcher plant grows in the southeastern United States. It is called the parrot pitcher plant. Its leaf pitchers lie horizontally on the ground, making it easy for an insect to climb inside. An insect crawls into a passage lined with downward-turning bristles that trap it. As the insect struggles to get out, the digestive juices of the plant begin working, leaving no hope of escape for the insect.

Name _____

Skills Check

Directions: Circle the letters of the correct responses in items 1-4.

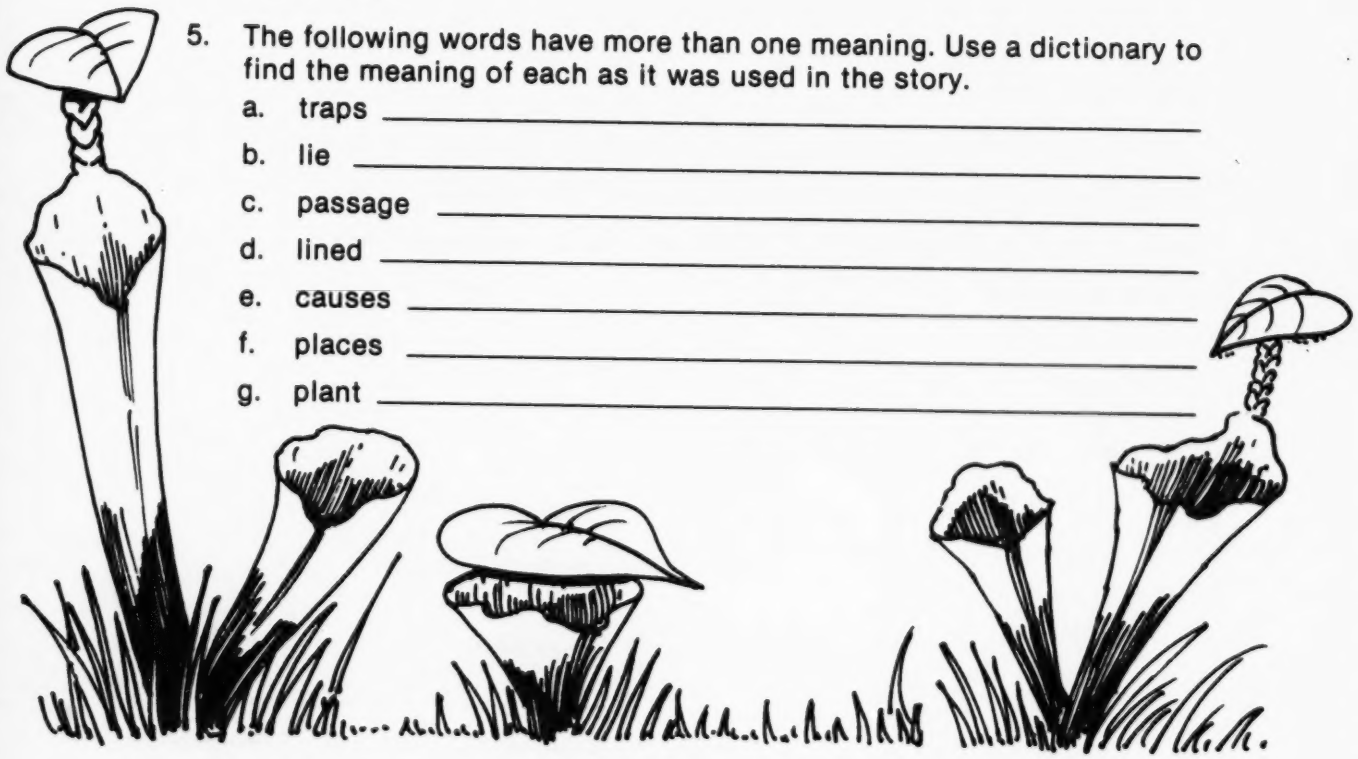
1. The story is mainly about
   a. a plant that frightens insects
   b. a plant that repels insects
   c. a plant that traps insects

2. The pitcher plant grows in
   a. mountainous places
   b. damp places
   c. dark places

3. In the story a word that means "to eat" is
   a. devour
   b. trap
   c. capture

4. An antonym for the word "relaxes" is
   a. causes
   b. crawls
   c. struggles

5. The following words have more than one meaning. Use a dictionary to find the meaning of each as it was used in the story.
   a. traps _____
   b. lie _____
   c. passage _____
   d. lined _____
   e. causes _____
   f. places _____
   g. plant _____



Name _____

Insects Strike Back!

The pitcher plant has long posed a threat to insects. Your task is to find a way to protect insects from the slippery tubes and the dangerous digestive juices of the pitcher plant. Describe your protective device below. You may illustrate it if you choose.

_____

_____

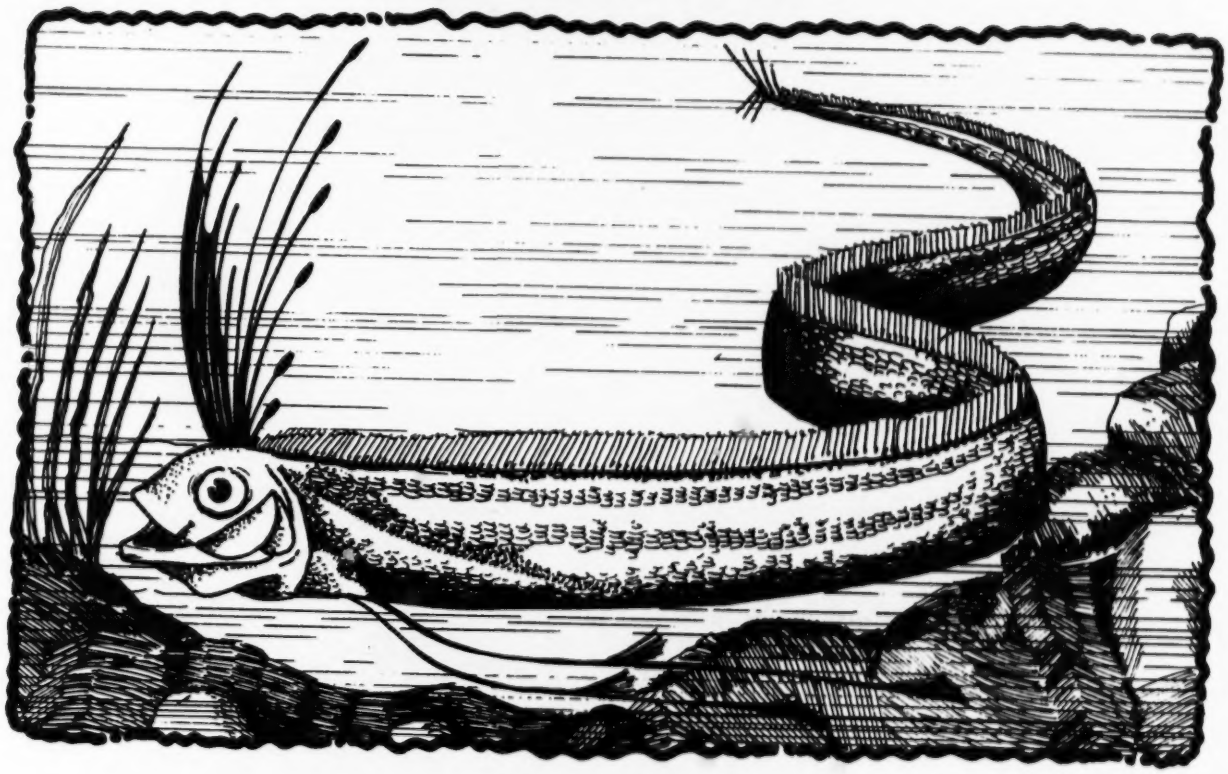
_____

_____

_____

_____

The Ribbonfish



A strange looking sea creature known as a ribbonfish or oarfish has sometimes been mistaken for a sea serpent. The ribbonfish lives in deep ocean waters and is seldom seen unless it is washed ashore during a storm. Even though it is a rarely seen fish, it is worldwide in distribution. Its decomposing remains have been found on beaches in many different locations.

The ribbonfish is a narrow bluish-silver fish that measures from twenty to thirty feet in length. It is about thirty centimeters thick with a flattened appearance. It has a short head with bright red fins resembling a mane and red pelvic fins shaped like oar blades. Its small, tubular mouth is adapted for slurping up small sea life, rather than biting. The colorful fish swims very much like a snake, causing some observers to think it is a serpent.

The ribbonfish is frequently a target of predatory fish. Sometimes a ribbonfish is found with several feet or yards of its tail bitten off. The fish can survive without the end of its tail, and some consider this to be a part of its natural defense. It is harmless to other fish.

The people of Norway have an old superstition about the ribbonfish. They have nicknamed it "king of the herring." They believe that it swims with herring, and according to superstition, if it is harmed, the herring will leave Norway. The fishermen do not bother the ribbonfish, hoping the herring population will remain plentiful in their waters.

Name _____

Skills Check

Directions: Circle the letters of the correct responses in items 1-4.

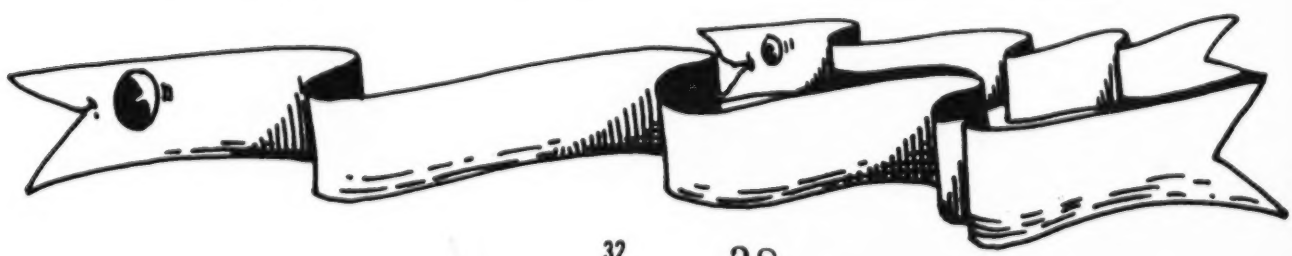
1. The story is about a fish that is sometimes mistaken for
   a. a sea serpent
   b. an oarfish
   c. a ribbonfish

2. The ribbon-like tail of the fish in the story is
   a. a natural defense system
   b. an attractive mane
   c. a dorsal fin

3. The word "distribution" refers to
   a. the number of ribbonfish
   b. the kinds of ribbonfish
   c. the geographic range of ribbonfish

4. A word that means "eating other animals" is
   a. decomposing
   b. predatory
   c. adapted

5. Write the root word for each of the words below.
   a. mistaken _____
   b. distribution _____
   c. resembling _____
   d. slurping _____
   e. colorful _____
   f. harmless _____
   g. population _____
   h. plentiful _____
   i. biting _____
   j. rarely _____



Name _____

A Sea Serpent

The ribbonfish has sometimes been mistaken for a sea serpent. Even though many people have reported seeing a sea serpent, its existence has never been satisfactorily proven.

Write a story about how you prove the existence of a sea serpent. What does it look like? Where did you discover it? What does it do?

A Poison Pincushion

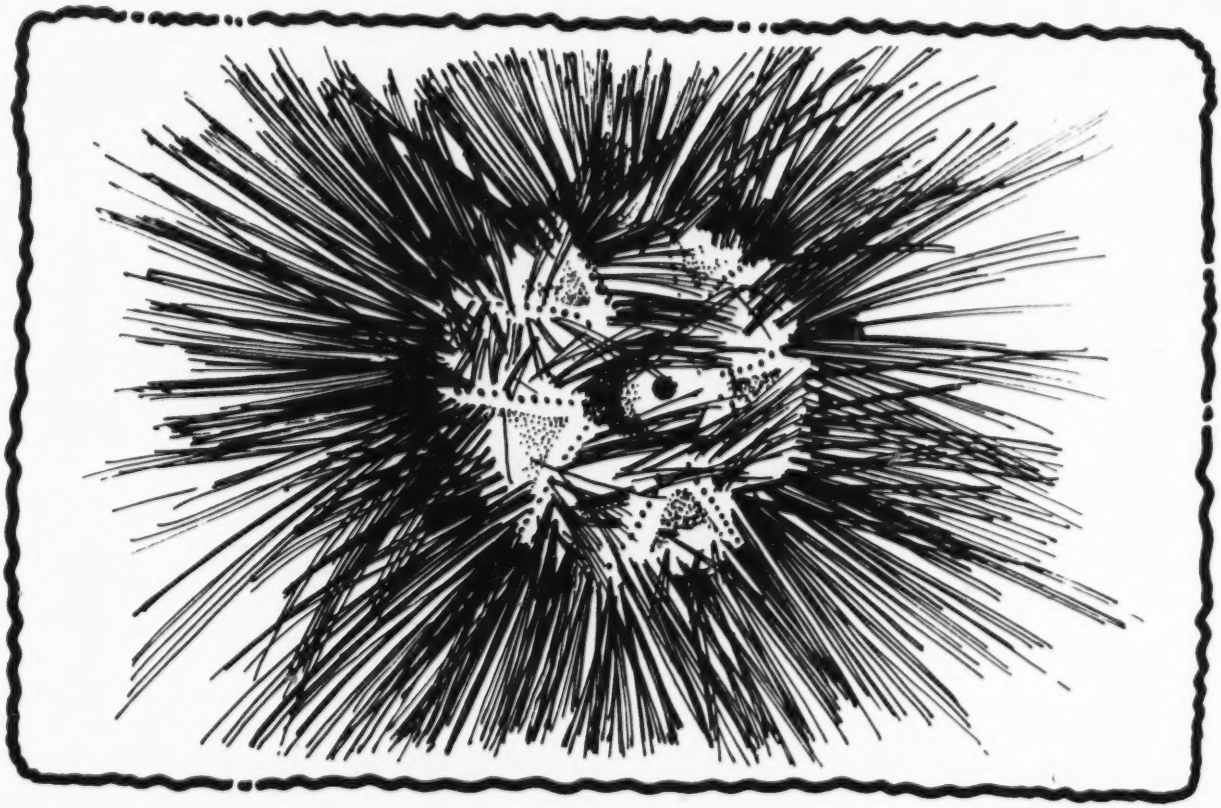
Do you know a creature that looks like a pincushion but is much more dangerous? The creature is a sea urchin. It belongs to a group of animals called Echinodermata, meaning hedgehog of the sea.

The sea urchin is a globe-shaped creature covered with sharp, movable spines. Some of the spines may be at least a foot long. The sea urchin varies in size from 1½ inches to 10 inches in diameter. It may be red, black, purple, or green. Its mouth is located in the center of the underneath side. The sea urchin moves slowly using its spines and tube feet for mobility. It takes water into its body and pumps it into the tube feet to make them function. The spines also function as shock absorbers in rough waters.

The sea urchin is usually found attached to the bottoms of rocks or sedimentary formations. It eats algae and other sea vegetation, but there is a type of sea urchin that eats small animals.

The sting of the sea urchin is something one does not quickly forget. The brittle tips of the spines break easily, leaving poison in the victim. The wound made by the sting is painful and often causes the victim to experience dizziness, breathing difficulty, and paralysis.

The sea urchin poses a real threat to divers. That is because the sea urchin's needlelike spines can easily puncture the diver's wet suit and gloves, causing poison to enter the victim. The spines must be removed and the wounds cleansed promptly to prevent more serious complications.



Name _____

Skills Check

Directions: Circle the letters of the correct responses in items 1-4.

1. The story is mainly about
   a. a pincushion
   b. a sea urchin
   c. a hedgehog

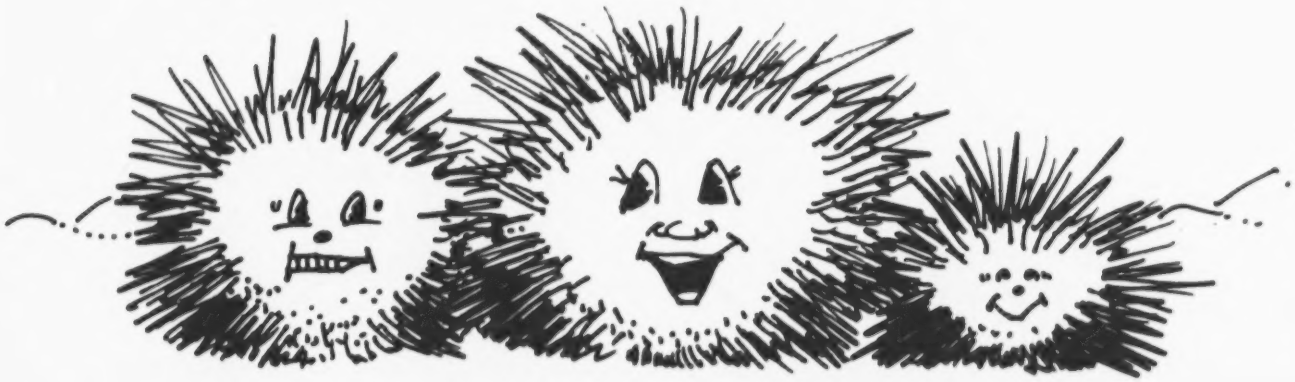
2. The creature of the story is
   a. harmless to man
   b. harmful to man
   c. harmful only to other sea creatures

3. A word that means "easy to break" is
   a. puncture
   b. needlelike
   c. brittle

4. A synonym for "hardship" is
   a. difficulty
   b. threat
   c. harm

5. If the guide words on a dictionary page are "pin" and "poison," place X in the blank by each word that should appear on the same page.

____painful	____police
____paralysis	____plural
____puncture	____point
____piranha	____poetry
____plain	____pillow
____poise	____pioneer



Name _____

Time to Rhyme

Directions: Write a nursery rhyme about the sea urchin or another sea creature. If you have trouble, perhaps you can think of an old favorite and rewrite it in a different way. Below are some samples, but you write one that's even better!

_____

_____

_____

_____

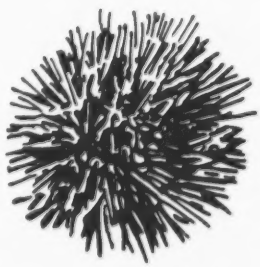
_____

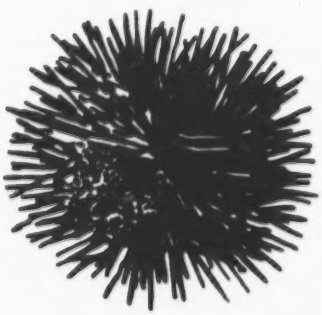
_____

_____

_____

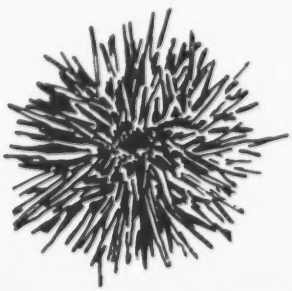
Little sea urchin
Lived in the sea,
Happy as he could be.
Along came a fish
In search of a dish,
And sea urchin caused him to flee!



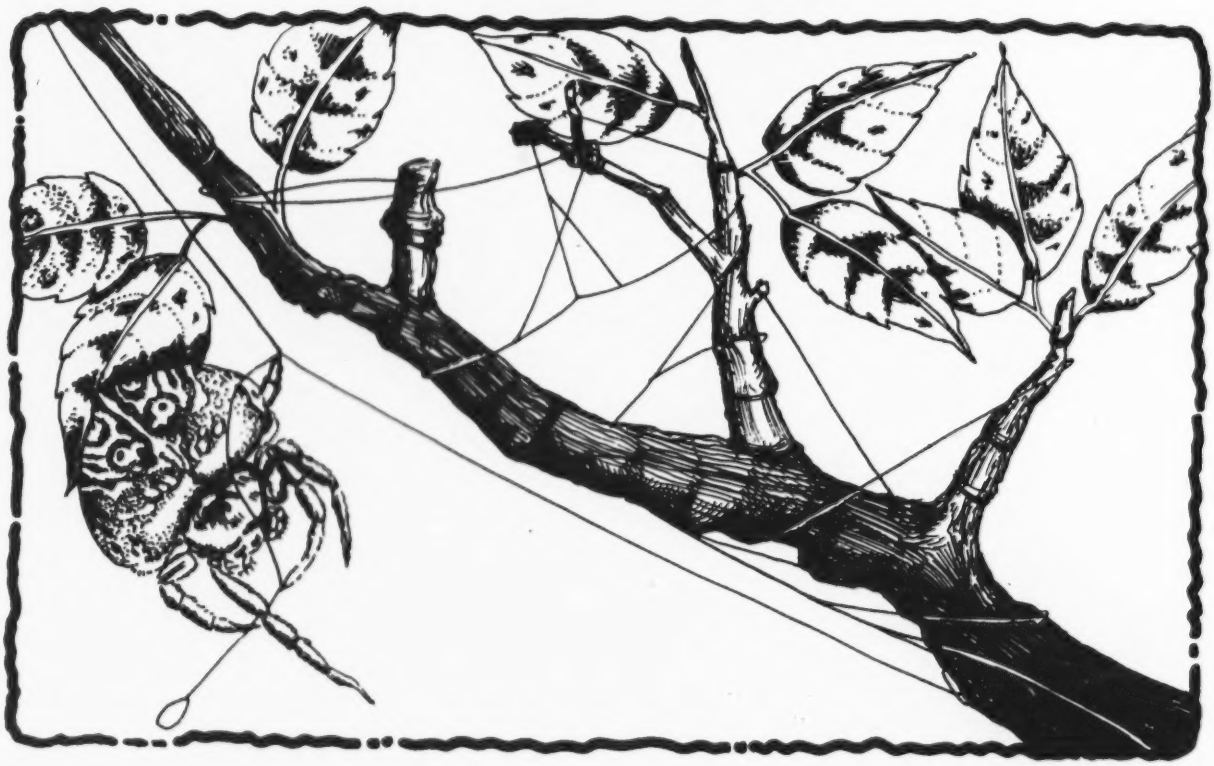


A dillar, a dollar,
I bet you will holler
If you and a sea urchin meet.
Always be careful and try to remember
There's more than one way to greet!

Urchins are nimble;
Urchins are quick.
I hope you are faster,
Or the spines will stick!



The Bolas Spider



The bolas spider, or Mastophora, is an amazing creature. Instead of spinning a web for capturing insects, the bolas spider lassoes its food. Actually, it spins a line that is weighted on the end with a liquid substance. The line is hurled toward its prey much as one would hurl a lasso. The substance at the end of the line holds the catch until the spider can wrap it in strands of silk.

The bolas spider is found in most parts of the United States. It is a fat spider with a wrinkled, bumpy abdomen. Its first pair of legs is longer than the others. It usually makes its home in trees and bushes.

Sometimes when the bolas spider is handled, it pretends to be dead. It often doesn't even move when dropped or gently prodded.

But when night arrives, the bolas spider becomes more active. That is when it hunts for food. If there is no prey after half an hour of waiting to lasso a meal, the bolas spider winds up the line and eats it. Then it spins another line with a beady substance on the end and tries again.

The female bolas spider lays eggs and encases them inside a sac. The sac is about the same size as the spider and is often hung beneath tree leaves. The female usually dies in late autumn before the young spiders hatch in the spring. More than a hundred young spiders may hatch from an egg sac and begin to discover the world around them.

Name _____

Skills Check

Directions: Circle the letters of the correct responses in items 1-4.

1. The bolas spider obtains food with
   a. a web
   b. a lasso
   c. a weighted line

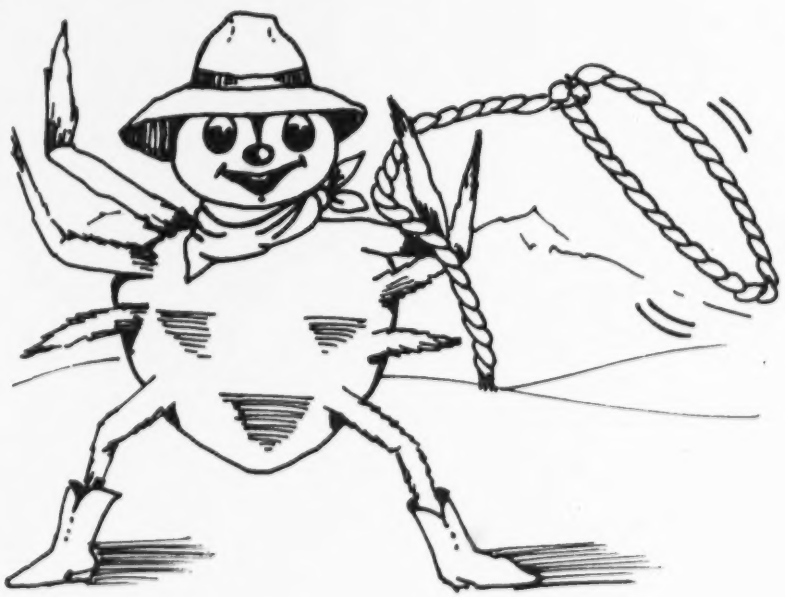
2. The bolas spider lives
   a. in trees and bushes
   b. in the ground
   c. in dark places

3. The word "encases" means
   a. shelters
   b. encloses
   c. pushes

4. A synonym for "thrown" is
   a. weighted
   b. prodded
   c. hurled

5. The following words were used in the story. Number the words in alphabetical order.

____creature
____capturing
____active
____beady
____holds
____hung
____hurls
____abdomen
____bumpy
____hatch
____catch
____bushes



Name _____

In Honor of the Bolas

Directions: Complete one or more of the following activities concerning one of nature's most amazing arachnids, the bolas spider.

1. Pretend you are a bolas spider. Write a story about your lassoing experiences.
2. Write a poem about the bolas spider.
3. Design a bookmarker to honor the bolas spider.
4. Turn on your imagination and write an interview—the first ever with the bolas spider.
5. Draw a picture showing the bolas spider in its natural habitat.
6. Draw a cartoon depicting an incident in the life of the bolas spider.
7. Make an informational mobile about the bolas spider.

The Amazing Hummingbird

What bird can fly backwards? If you answer the hummingbird, you are correct. How is it able to fly inside a flower and then reverse its flight? It looks like it does this by turning its wings over, but scientists say the wings vibrate horizontally and do not turn over. The bird's tail changes position, altering the direction of the blast created by the wings and enabling the hummingbird to fly in almost any direction. The amazing bird even has the ability to hover like a helicopter.

The hummingbird is a thumb-sized bird with shiny, green feathers that glisten in the light. It has a long, slender bill that is used to probe flowers for nectar and insects. The bill of a young hummingbird is shorter than the bill of an adult bird. The tongue is curved on the sides to form tubes that are used in gathering food.

The hummingbird holds the record for being the tiniest bird in the world. It almost looks like an insect. Its eggs are the size of small beans.

Not only is it small, but it is also fast. Scientists estimate a hummingbird can easily fly about 50 miles per hour. It is said that a hummingbird beats its wings about 75 times a second. That is so fast the wings cannot be seen!

The hummingbird has been heard singing on rare occasions, but usually its voice is only used when it is frightened. The sound is a shrill squeak.

The hummingbird is a migratory bird. Each year the ruby-throated hummingbird migrates southward from the United States across the Gulf of Mexico to Central America. In summer it returns to the United States.

Name _____

Skills Check

Directions: Circle the letters of the correct responses in items 1-4.

1. The story is mainly about
   a. the tiniest bird in the world
   b. the most amazing bird in the world
   c. the fastest bird in the world

2. The hummingbird eats
   a. only nectar
   b. insects and spiders
   c. nectar and insects

3. In the story the word "probe" means
   a. to search
   b. to inquire
   c. to touch

4. A word that means "to stay in the same place" is
   a. migratory
   b. hover
   c. position

5. The following words have more than one meaning. Use the dictionary to find the meaning of each as it is used in the story.

	Word	Meaning
a.	record	_____
b.	beats	_____
c.	answer	_____
d.	light	_____
e.	form	_____
f.	returns	_____
g.	reverse	_____

Name _____

In Reverse

The hummingbird has the ability to fly backwards. How many things can you do backwards? Make a list below.

_____

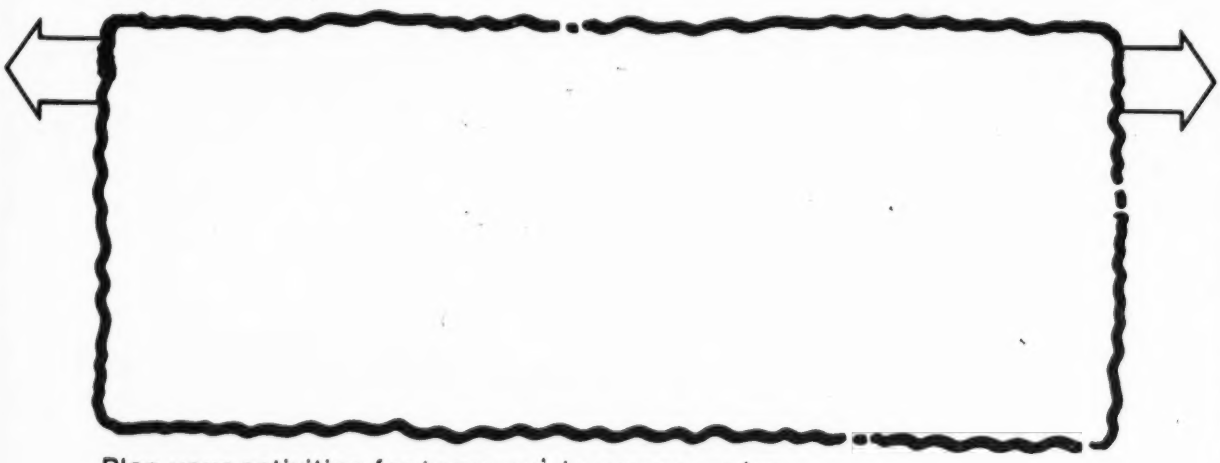
_____

_____

_____

_____

Think of one common object and try to imagine how it would look if it were constructed backwards. Make a drawing of the object. Can your friends identify the object?



Plan your activities for tomorrow in reverse order.

_____

_____

_____

_____

_____

_____

The Love Vine

The love vine, or dodder plant, is a parasitic plant. That means it derives the necessary materials for living from another plant called a host, to which it attaches itself. The love vine has no chlorophyll, so it does not produce its own food. It must depend on other plants, such as flax, beans, grass, and clover for nourishment.

The love vine does not have leaves. It has tiny scales along the stem where leaves on most plants grow. It is easily recognized by its threadlike white or yellow stems. It wraps itself around other living plants and often kills or severely damages the host plants.

In the spring the seeds of a love vine sprout in the soil, but the growth pattern is different from most other plants. Instead of developing roots in the ground, the love vine produces long, threadlike stems that seek out other growing plants. Each seedling wraps itself around the first plant it touches and begins to obtain nourishment from it. The coils send suckers called haustoria into the host plant. The haustoria discharge a substance which dissolves the outer cells of the host and allows the suckers to penetrate deeper in search of food. The part of the vine below the attachment point dies, and the plant continues to send out new coils.

The flowers of the love vine appear in small clusters. The seeds produced by the flowers are angular. The vine dies in autumn, but the seeds enable a new vine to grow in the spring. If unfavorable conditions exist, the seeds may live as long as five years before germinating.

Name _____

Skills Check

Directions: Circle the letters of the correct responses in items 1-4.

1. The story is mainly about
   a. a parasitic vine
   b. the haustoria
   c. the dodder host

2. The story does not say, but it can be implied that
   a. the love vine may be helpful to farmers
   b. the love vine may be troublesome to farmers
   c. the love vine poses no problems for farmers

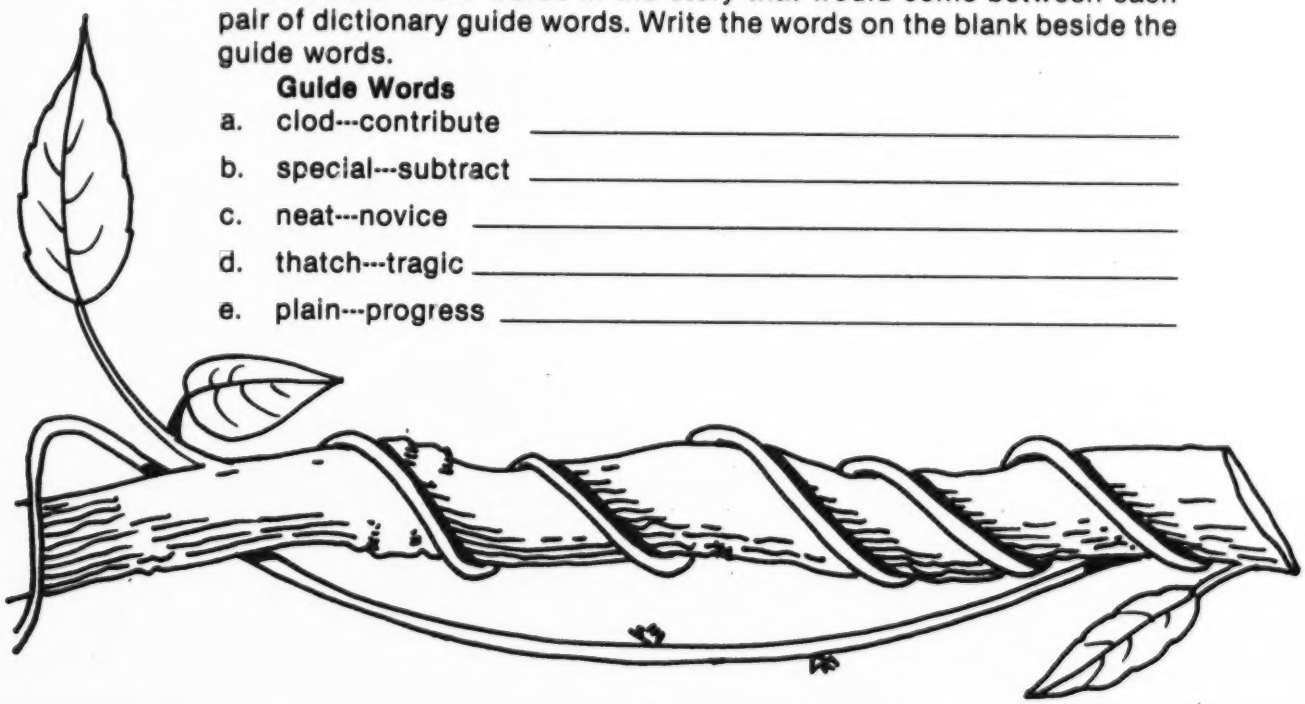
3. In the story the word "discharge" means
   a. to give forth a fluid
   b. to let go
   c. to unload

4. A synonym for "harmed" is
   a. parasitic
   b. severe
   c. damaged

5. Find three or more words in the story that would come between each pair of dictionary guide words. Write the words on the blank beside the guide words.

   Guide Words

   a. clod---contribute _____
   b. special---subtract _____
   c. neat---novice _____
   d. thatch---tragic _____
   e. plain---progress _____



Name _____

Vines and More Vines

Directions: The names of 20 vines are hidden in the puzzle. You may look horizontally, vertically, and diagonally. Circle your answers.

E B G R E O N S T I N L O R S E M T
D I K R C H O N E Y S U C K L E J Y
A N U L A O K R O P S N T Y S O A S
M D D B K P O W N A J B S R W E R N
U W Z L E N E Y I S O E M O E B N A
S E U A R A V O M S P N C L E I A S
C E I C T B N A L I T D E G T T S T
A D E K O N E S H O S E T G P T O U
D A F B R E C S N N I W R N O E O R
I E D E W B E I R F T B R I T R L T
N P O R T A N E S L A E N N A S M I
E T A R E D B E M O M R A R T W Y U
L E N Y O M U H E W E R C O O E N M
N E S T U B A L L E L Y R M B E T E
J W K C T A R B O R C N T E R T S Y
A S U E N G L I S H I V Y D O N A M
N C R O B E A R B E R R Y E N A N T

WORD BANK

GRAPE	KUDZU	WISTERIA	BLACKBERRY
HOP	BEAN	MUSCADINE	PASSIONFLOWER
DEWBERRY	CLEMATIS	MORNING GLORY	ENGLISH IVY
SWEET PEA	BITTERSWEET	BINDWEED	HONEYSUCKLE
SWEET POTATO	NASTURTIUM	BEARBERRY	CUCUMBER

The Hognose Snake

An interesting snake that has mastered the act of bluffing is the hognose snake. The snake is harmless, but it doesn't appear to be. It has frightened many people and has often been mistaken for a deadly snake. In fact, many hognose snakes have been killed because they appear so ferocious.

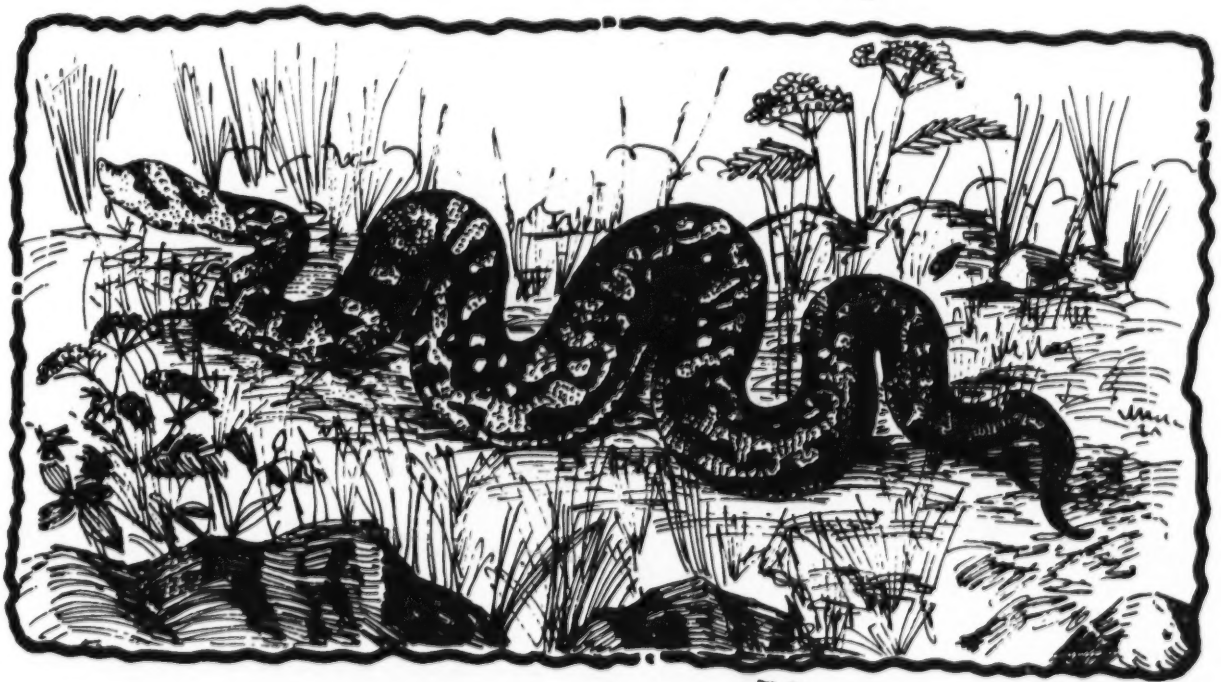
The hognose snake is about twenty to thirty-two inches long and has no fangs or poison. Its color varies from yellow and gray to orange, red, and brown. The underside may be a lighter color.

When the hognose snake is frightened, it behaves in a threatening manner. First, it swells up almost twice its normal size. It does this by moving its ribs forward. Then it hisses and strikes. The next part of the act consists of twisting and turning on its back. Then it lies very still as if it were dead. Sometimes it lets its tongue hang out and become covered with dust. If a person turns the snake on its stomach, it rolls right back to its "dead" position. It will turn to its back over and over again. It soon grows tired of being bothered.

The hognose snake likes to live in sandy places where it can easily obtain food. It feeds on crickets, frogs, and lizards, but toads seem to be the preferred delicacy. The hognose snake has a lancelike tooth in the back of its mouth that enables it to puncture the toad's body.

The name "hognose" was given to the snake because of the shape of its head. Its nose has a hard, trowel-shaped shield that can loosen soil and root out toads and frogs.

If you should encounter a hognose snake in the late summer, you may find some baby snakes nearby. The eggs are laid in very early summer. The young snakes that hatch are from six to ten inches long.



Name _____

Skills Check

Directions: Circle the letters of the correct responses in items 1-4.

1. The story is mainly about
   a. a harmless snake
   b. a dangerous snake
   c. a deadly snake

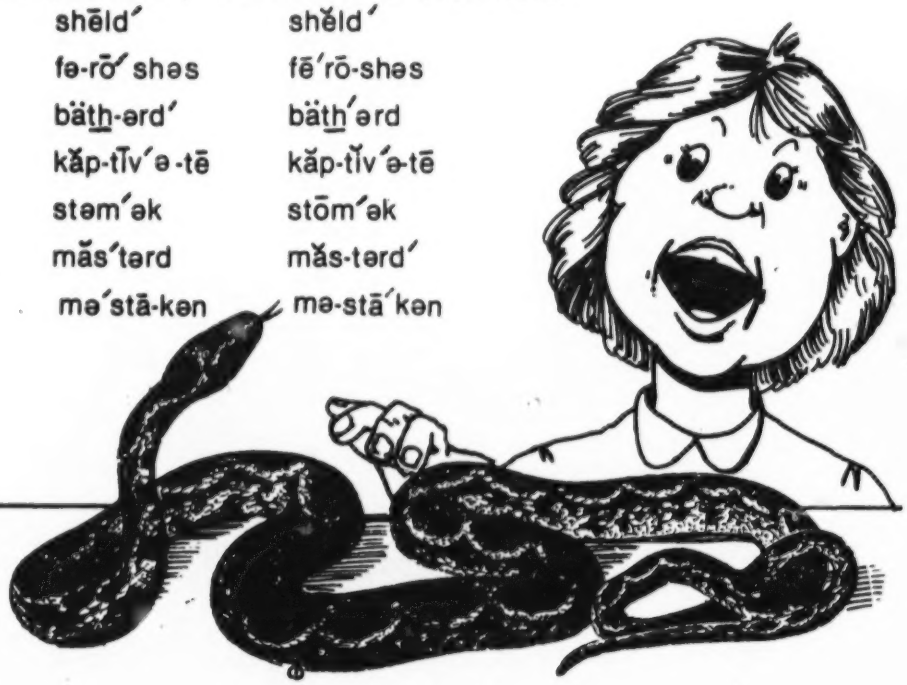
2. The hognose snake likes to
   a. attack
   b. hide
   c. bluff

3. In the story a word that means "enlarges" is
   a. swells
   b. overcomes
   c. varies

4. A synonym for "dangerous" is
   a. ferocious
   b. harmless
   c. poison

5. Circle the correct phonetic pronunciation of each word.

a.	shield	shēld′	shĕld′
b.	ferocious	fə-rō′ shəs	fē′rō-shəs
c.	bothered	bäth-ərd′	bäth′ərd
d.	captivity	kăp-tĭv′ə-tē	kăp-tĭv′ə-tē
e.	stomach	stəm′ək	stōm′ək
f.	mastered	măs′tərd	măs-tərd′
g.	mistaken	mə′stā-kən	mə-stā′kən



Name _____

A Scavenger Hunt

Directions: Are you ready to embark upon a scavenger hunt? You may search through resource books if you need information. When you find all the answers and put them in the blanks below, you will know another name for the hognose snake. Come and join the hunt!

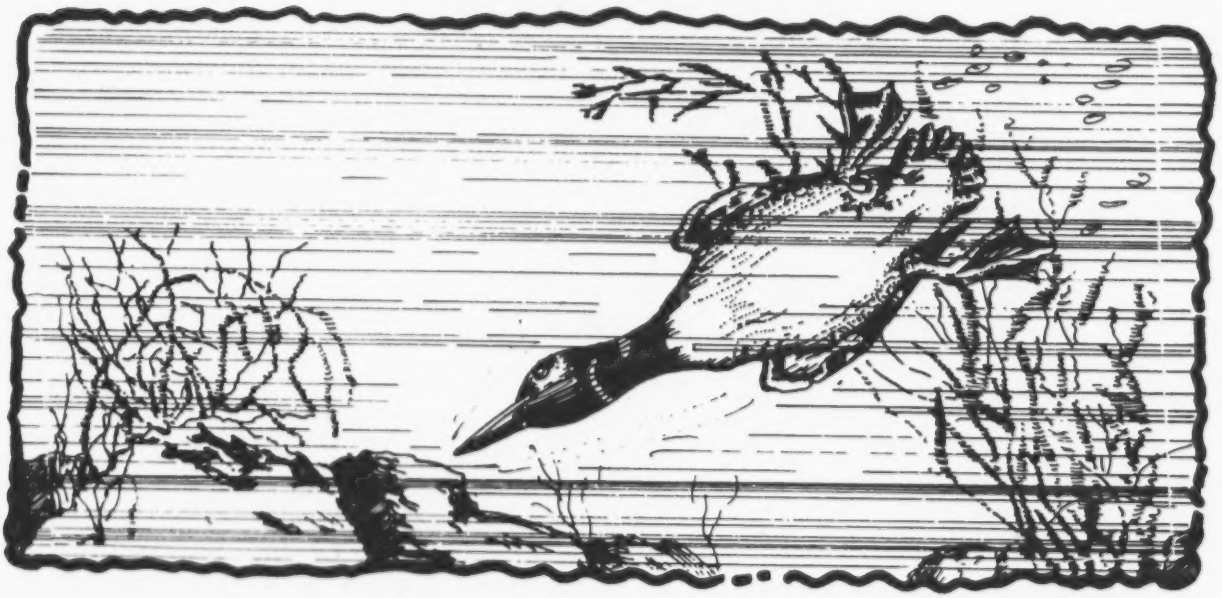
CLUES:

1. First letter of the last name of the 14th President of the United States
2. Third letter of the part of speech that names a person, place, thing, or idea
3. First letter of the language spoken in the country once known as Gaul
4. First letter of the last name of cartoon characters Wilma and Fred
5. Second letter of the last name of the inventor of the steam engine
6. Fourth letter of the last name of the vice-president under President Jimmy Carter
7. First letter of the last name of the creator of Goofy and Pluto
8. First letter of the Republican Party symbol
9. First letter of the sea that borders the western part of Saudia Arabia and Yemen

Another name for the hognose snake is:

1	2	3	4		5	6	7	8	9

The Loon



Have you ever seen a bird escape danger by going into the water and poking up its head and neck like a periscope? The loon does this. Sometimes it drops just below the surface of the water and quietly disappears without a trace or ripple.

The loon is an excellent swimmer and diver. It is able to go deeper and stay underwater longer than other birds. It can chase fish more than 150 feet below the surface of the water and stay submerged for about fifteen minutes. It is thought that oxygen stored in the muscles makes this possible.

Strange as it may seem, the loon cannot walk on land. It must have water to run on before it can get aloft. Its legs are well-developed for swimming, but they are set back too far on the body to permit walking. When on dry land, the loon is very clumsy and vulnerable.

There are four species of loons found in North America. The best known in the United States and Canada is the common loon or great northern diver. It is a black and white bird about three feet in length. Its head and neck are glossy black and green with white streaks. It has webbed toes and short, narrow wings. Its beak is sharp and pointed, an asset for capturing fish.

The loon is usually found alone or in pairs. It makes its nest near the water and spends most of its time in the water. It is the state bird of Minnesota. It moves with the seasonal changes, living in ocean water in the winter and fresh water in the summer.

Those who have heard the cry of a loon seldom forget it. The sound begins as a low tone that rises and ends with a gasp. The cry has frightened those who hear it for the first time, for it does sound much like a harsh scream.

Name _____

Skills Check

Directions: Circle the letters of the correct responses in items 1-4.

1. The story is mainly about
   a. a social bird
   b. a water bird
   c. a land bird

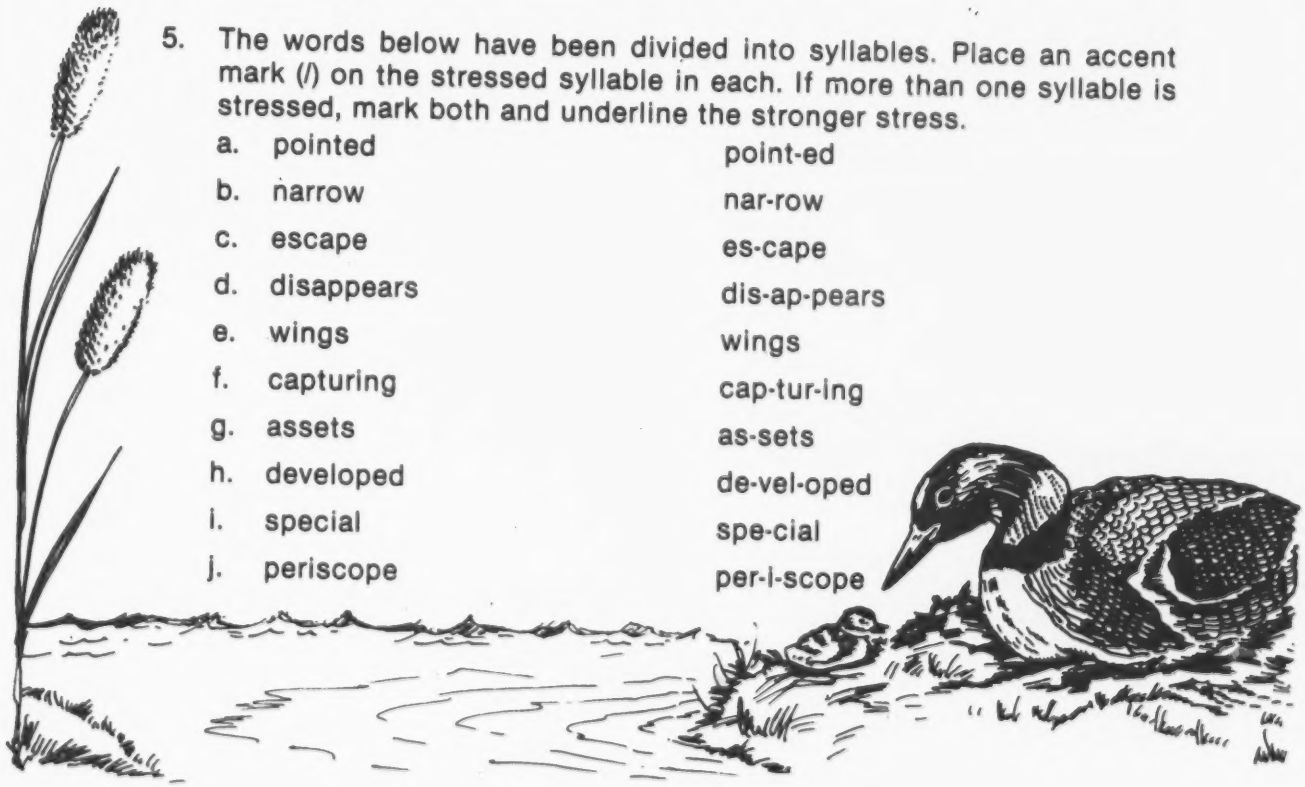
2. The loon is
   a. clumsy on land
   b. graceful on land
   c. safe on land

3. In the story a word that means "open to attack" is
   a. vulnerable
   b. harsh
   c. submerged

4. An antonym for "rises" is
   a. drops
   b. escapes
   c. disappears

5. The words below have been divided into syllables. Place an accent mark (/) on the stressed syllable in each. If more than one syllable is stressed, mark both and underline the stronger stress.

a. pointed	point-ed
b. narrow	nar-row
c. escape	es-cape
d. disappears	dis-ap-pears
e. wings	wings
f. capturing	cap-tur-ing
g. assets	as-sets
h. developed	de-vel-oped
i. special	spe-cial
j. periscope	per-i-scope

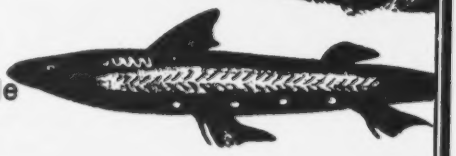


Name _____

Family Groups

Directions: The loon, as you know, lives alone or in pairs. Many other animals live in groups. Some of the groups have special names. Birds that stay together are called a flock of birds.

How many other family groups do you know? Write the letter of the group in the blank by each creature.



____	1.	geese	a.	pride
____	2.	oysters	b.	school
____	3.	buffalo	c.	hive
____	4.	quail	d.	herd
____	5.	lions	e.	gaggle
____	6.	fish	f.	pack
____	7.	bees	g.	bed
____	8.	dogs	h.	covey
____	9.	hogs	i.	drove
____	10.	robins	j.	nest

Can you think of others? List them below.

_____

_____

_____

_____

_____

_____

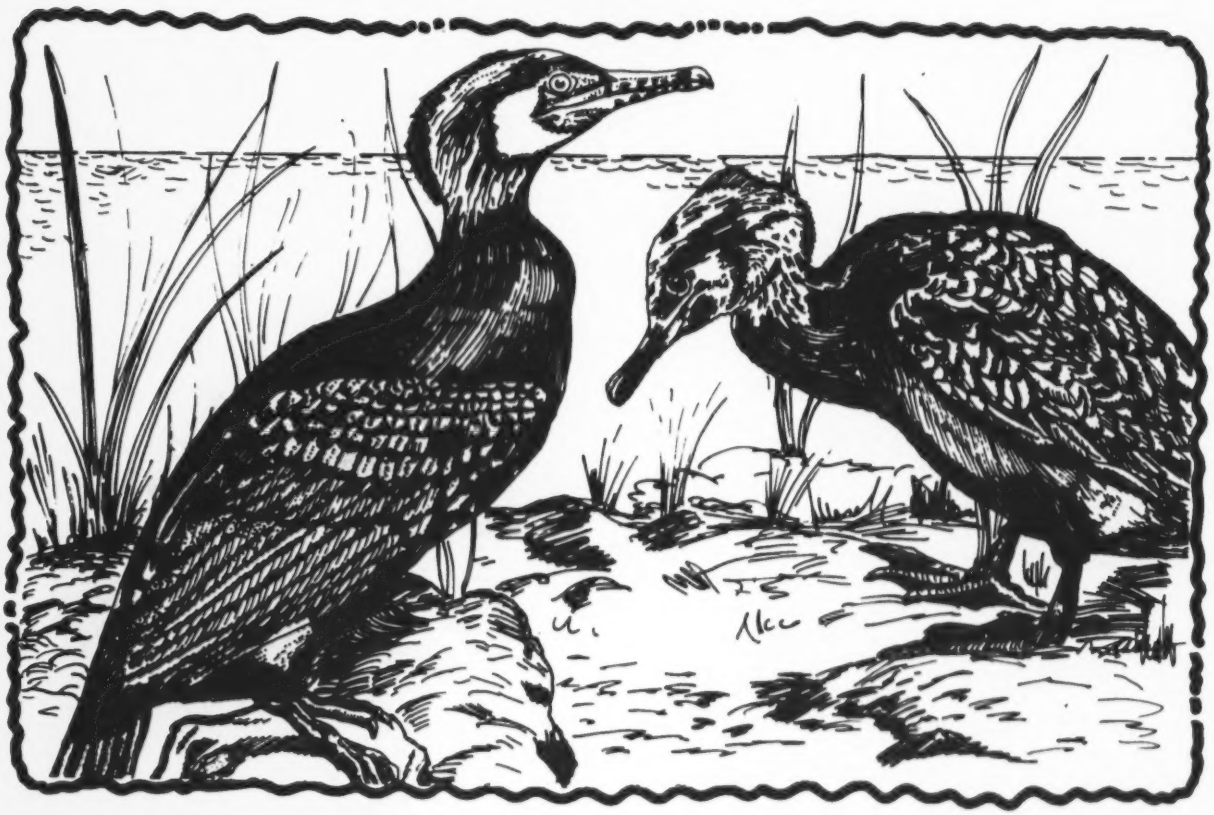
_____

_____

_____

_____

The Cormorant



The cormorant is a unique bird that appears to be master of both air and sea. It is quite skilled in fishing, swimming, and diving. It often explores beneath the surface of water looking for prey or fleeing from danger.

There are thirty cormorant species scattered throughout the world, but the double-crested cormorant lives only in North America. It is a social bird and often lives in large groups of several thousand. It builds its nest close to other nests on rocky islands in the sea.

The adult cormorant is shiny black with a greenish highlight and bronze upper body. The wing feathers have a scaly appearance. The eyes are outlined in bright blue and are positioned to allow the bird to look downward without moving its head. It has a hooked bill with serrated edges, a long neck, and an orange throat pouch.

The cormorant flies close to the surface of the water, its neck stretched ahead with its feet under its tail. To get aloft it appears to run along the top of the water, flapping and splashing until it rises. When moving from place to place, cormorants form long lines and V's and fly silently on.

It is interesting to note that some cormorants have dived below the sea's surface and brought up trinkets found from ship wreckages. Items such as combs, utensils, and coins have been found in their nests. No wonder some refer to the cormorant as the submarine bird!

Name _____

Skills Check

Directions: Circle the letters of the correct responses in items 1-5.

1. The story is mainly about
   a. a submarine
   b. a bird
   c. a fish

2. The author does not say, but it can be implied that
   a. the cormorant is dangerous
   b. the cormorant is curious
   c. the cormorant is friendly

3. Cormorants live
   a. alone
   b. in groups
   c. in pairs

4. The word "aloft" means
   a. in the air
   b. on the ground
   c. out of the water

5. The word "waterproof" is a
   a. root word
   b. compound word
   c. guide word

6. Write the root word for each of the words below. Circle the suffix or prefix in each word.
   a. fleeing _____
   b. appearance _____
   c. positioned _____
   d. stretched _____
   e. submarine _____

Name _____

Water Birds

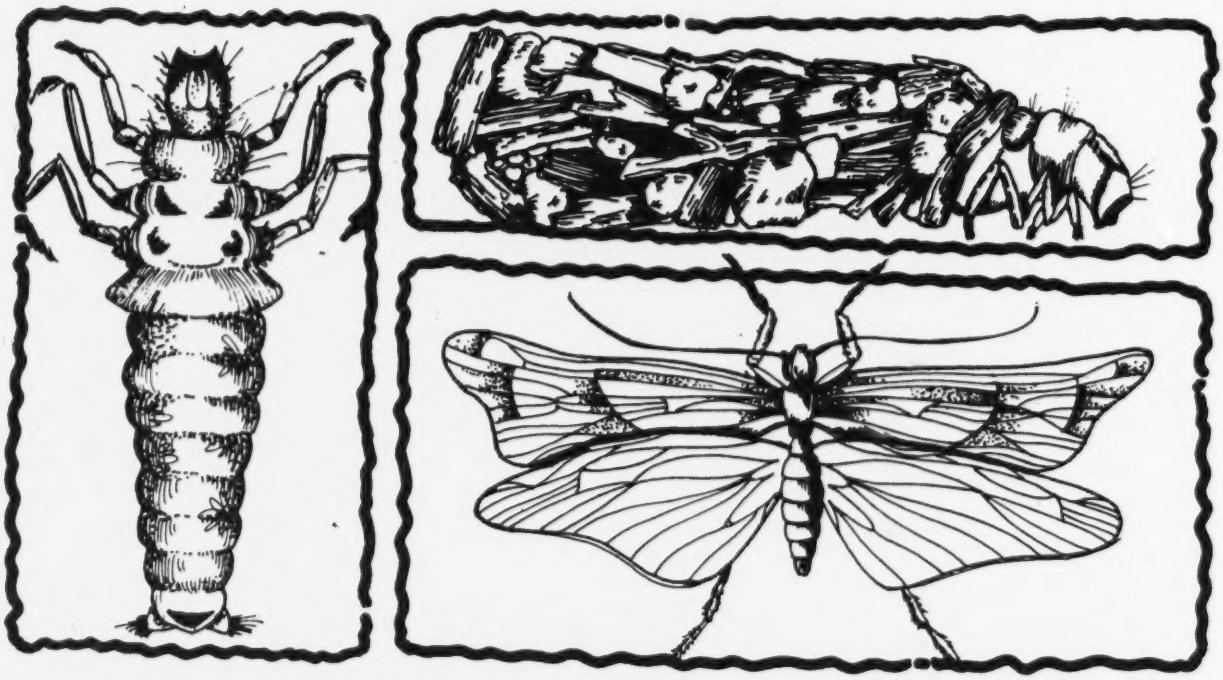
Directions: The names of 30 different water birds are hidden in the puzzle. How many can you find? You may look horizontally, vertically, diagonally, and backwards. Circle your findings.

G K C U D S A C S N I P E D O T R
A R P B O H C D S W R U G E L N A
R A E R N E L S P C A I N O G A S
E I T B R A O C O O T N I K T R C
V L R H E R O N O Y S R W R Y O O
O S E O T W N R N G R E P O E M R
L I L A N A V U B P U T A T L R E
P C B O P T G F I R X T L S L O P
Z L L U G E O F L A M I N G O C I
A D B N O R L O L S T B Q K W T P
L T E R G E V I B I S V U P L N D
S T O R E N A R C D O A E I E L N
J K I L L D E E R A J O T N G A A
B O W I L L I T B T N S C A S R S

WORD BANK

HERON
PETREL
COOT
DUCK
LOON
GULL
AUK
RAIL
SNIPE
CRANE
STORK
SWAN
TERN
IBIS
EGRET
STILT
FLAMINGO
KILLDEER
SANDPIPER
PLOVER
ALBATROSS
CORMORANT
GREBE
PELICAN
WILLIT
YELLOWLEGS
BITTERN
SPOONBILL
LAPWING
SHEARWATER

The Caddis Worm



Do you know a creature that builds a miniature log cabin for its home? Strange as it seems, the caddis worm does this. The home is made of small twigs instead of logs, but it is cemented together with a glue-like substance secreted from its mouth. Sometimes pebbles are also used. The home is shaped like a tube that covers its body. The inside of the house has a tough silk lining. There is a front door and a back door. The homes are various shapes, but the most common types are tube-shaped and cornucopia-shaped. After the caddis worm builds its home, it moves it along the bottom of ponds.

The creature inside the house has six legs, but the first pair is shorter than the others. Along the abdomen of the caddis worm are short, threadlike gills. The gills fill with air that has already been used by the insect. The air is then exchanged for oxygen from the water. Water enters the front door, flows over the gills, and passes through the back door, thus supplying the caddis worm with fresh oxygen.

When the caddis worm swims, it emerges halfway from its house, throws back its head, and swims by repeatedly doubling up and stretching out.

The caddis worm enters a pupa stage and transforms into a mothlike creature called the caddis fly. It forms a pupa by fastening onto something in the water and closing both doors. Some species spin a silk covering across each door, but others close the doors with sticks and pebbles. Water still flows through the openings, bringing oxygen to the gills of the pupa. When the time is right, the changed creature crawls out, leaves the water, and tries its new wings.

Name _____

Skills Check

Directions: Circle the letters of the correct responses in items 1-4.

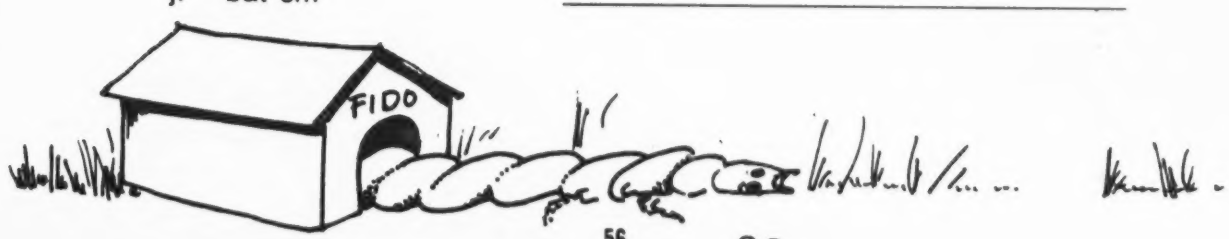
1. The story is mainly about
   a. the habits of the caddis fly
   b. the house of the caddis worm
   c. the pupa of the caddis worm

2. The caddis worm lives
   a. in the water
   b. on the land
   c. in a tunnel

3. In the story "transforms" means
   a. changes
   b. disappears
   c. stretches

4. A word that means "comes out" is
   a. passes
   b. emerges
   c. crawls

5. Write the correct word for each phonetic spelling.
   a. bĭldz′ _____
   b. äk′sĭ-jən _____
   c. mĭn′ē-ə-chůr _____
   d. təf′ _____
   e. ĭ-mėrj′ĭz _____
   f. pĕb′ əlz _____
   g. bēd′ē _____
   h. făs′ning _____
   i. dōrz′ _____
   j. bät′əm _____



Name _____

Metamorphosis

Directions: The caddis worm is an example of a creature that enters metamorphosis. It changes from the larva or worm into the adult or caddis fly.

The words below are scrambled names of other creatures that go through metamorphosis. How many can you unscramble?

1. OBSNOD YLF _____
2. NIGWELAC _____
3. TAMIDN _____
4. NOCISROP YFL _____
5. AWRET TOMH _____
6. MOHT _____
7. TYLBTUREF _____
8. KPIPERS _____
9. TELEBE _____
10. EEILWV _____
11. TAN _____
12. EBE _____
13. WPSA _____
14. LAGLYLF _____
15. WYASFL _____
16. GATN _____
17. MOTIUSQO _____
18. AELF _____
19. GORF _____
20. MGIED _____

Directions: How many smaller words can you make using the letters in the word METAMORPHOSIS? Write your words below.

Answer Key

Page 2: 1. a 2. c 3. b 4. c 5. b. sev/er/al c. ac/cu/rate d. stri/ped or striped e. dis/tance f. un/der/neath g. ver/ti/cal h. po/si/tion i. cham/bers j. a/bil/i/ty

Page 3: BUTTERFLY (The letters that remain are EYTBRUFTL and may be rearranged to spell BUTTERFLY fish.

Page 5: 1. a 2. b 3. c 4. a 5. **tan**ning b. **man**grove c. unusual d. **de**stroy e. **an**chored f. **tan**gled g. **ap**pears h. **har**dy 6.a. usual b. begin c. call d. expose e. put f. coast g. actual h. walk i. move j. exist

Page 6: Seeking the Evergreens

S W H I T E S P R U C E G E N O R
T A C E S T C E D A R S O N E L B
O E O M N H O L L Y T O O I B A A
L N U A R E D S P R U C E P S N L
S I R G I C T L O C H I L E A R S
E P O N G A B A N R E H O T N I A
T A H O D R E S D O N E B I D F M
R I P L C O R H P T I M L H P S F
I N M I M B T P I B P L O W I A I
J I A A T G A I N L K O L N N L R
V G C K R C S N E I C C L R E G T
O R N O Y M H E U W A K Y E Z U F
S I L T O R S P N L J T P T E O E
E V R O R E D P I N E D I S E D N
L T O L A R C H C N J K N A L O Y
T J K O M N B D O N E P E E T D Y

Page 8: 1. b 2. c 3. a 4. a 5. 4, 2, 5, 3, 1; 4, 3, 5, 1, 2; 3, 1, 2, 5, 4; 5, 4, 3, 2, 1; 1, 3, 5, 4, 2; 1, 3, 5, 4, 2

Page 11: 1. b 2. a 3. b 4. a 5. a. underground home b. penetrates c. ferocious or fierce d. eats e. geographic sections 6. Place X in the blanks by spike, spill, spin, spinach

Page 12: 1. Near 2. Pursue 3. Fasten 4. Frequently 5. Ferocious 6. Pounces 7. Twigs 8. Types 9. Help 10. Sections 11. Located 12. Deadly 13. Doorway. Another name for the wolf spider is RUNNING SPIDER.

Page 14: 1. a 2. b 3. b 4. c 5. a. species b. strange c. ancestors d. cry e. noisy f. disappeared g. due h. fingers i. quiet

Page 17: 1. b 2. a 3. b 4. b 5. a. **swal**-lows b. **ac**-tu-al-ly c. re-**lease** d. **dif**-fer-ent e. **sur**-face f. **par**-a-site g. de-**gen**-er-ate h. **light**-ed i. **dan**-ger-ous j. **rec**-og-nize

Page 20: 1. a 2. c 3. a 4. a. fan-tas-tic b. cryp-to-bi-o-sis c. con-di-tion d. rel-a-tive e. dif-fer-ent f. ab-sorbs g. tem-per-a-tures h. en-dure i. a-maz-ing j. prac-tice 5. a. water b. remain c. learned d. extreme e. few f. creature g. blood h. condition

Page 21: Pond Creatures

E G O L Y Y E S N A K E D O C T O R W P
L B I A F L H O O Y W A T E R B U G A W
T U F N T F E A L C O R Z N E A H O T H
E Y T R W E C F I B N H O E D C Z P E I
E A U W D N N I V S N A I L I K O A R R
B T O A D O B S O N I U F O R S T E S L
G U B E G T F H X G M R S P T W I P C I
N F D A M S E L F L Y T N D S I U Q O G
I D R O N E F L Y R S D Y A R M Q G R I
V D V O C R A N E F L Y X T E M S R P G
I L H C G C K M H I D E K S T E O F I B
D A M I M R O W S I D D A C A R M G O E
A S P B J I L U A J P O Y R W L Q T N E
N O K E W A T E R B O A T M A N U M V T
J T U R T L E T R E T L E W O R M R O L
B O O T R E S B P E V U C E K A N S N E

Page 23: 1. a 2. b 3. b 4. a 5. Answers vary. 6. Answers vary.

Page 26: 1. c 2. b 3. b 4. a 5. 8, 2, 4, 7, 3, 1, 6, 5 6. a. com-mu-ni-cate b. dis-tance c. u-su-al-ly d. spe-cif-ic e. nec-tar f. re-al-ized g. wag-gled

Page 27: Across Clues: 1. queen 2. hive 3. six 4. nectar 5. three 6. worker 7. thorax 8. pollen 9. dance 10. larva Down Clues: 2. honey 3. stinger 11. compound 12. antenna

Page 29: 1. c 2. b 3. a 4. c 5. a. catches or snares b. stay in a horizontal position c. a path or channel through which something can pass d. to cover the surface with something e. brings about f. areas or locations g. a living member of the kingdom of Plantae possessing cellulose cell walls

Page 32: 1. a 2. a 3. c 4. b 5. a. mistake b. distribute c. resemble d. slurp e. color f. harm g. populate h. plenty i. bite j. rare

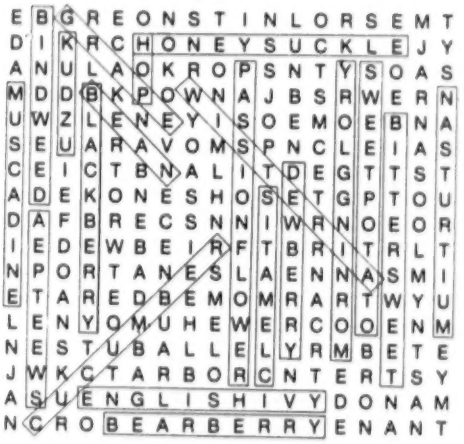
Page 35: 1. b 2. b 3. c 4. a 5. Place X by piranha, plain, poise, plural, point, poetry, and pioneer

Page 38: 1. c 2. a 3. b 4. c 5. 8, 6, 2, 3, 10, 11, 12, 1, 4, 9, 7, 5

Page 41: 1. a 2. c 3. a 4. b 5. a. the status of being known b. flaps repeatedly c. respond d. sunlight or daylight e. to shape or fashion f. comes back g. change directions

Page 44: 1. a 2. b 3. a 4. c 5. a. clover, coil, cluster, continue b. stems, spring, sprout, substance c. necessary, new, no d. the, threadlike, touches e. plant, produce, point

Page 45: Vines and More Vines



Page 47: 1. a 2. c 3. a 4. a 5. a. (shēld) b. (fə-rō´shəs) c. (bäth´ərd) d. (kăp-tĭv´ə-tē) e. (stəm´ək) f. (măs´tərd) g. (mə-stā´kən)

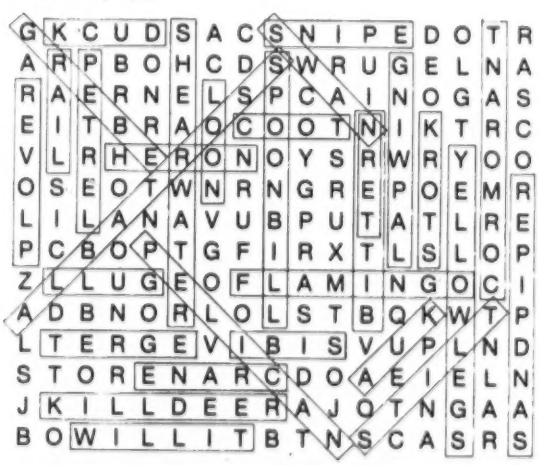
Page 48: 1. Pierce 2. Noun 3. French 4. Flintstone 5. Watt 6. Mondale 7. Disney 8. Elephant 9. Red Sea. Another name for the hognose snake is PUFF ADDER.

Page 50: 1. b 2. a 3. a 4. a 5. a. (point´ed) b. (nar´row) c. (es-cape´) d. (dis´ap-pears´) e. (wings´) f. (cap´tur-ing) g. (as´sets) h. (de-vel´oped) i. (spe´cial) j. (per´i-scope´)

Page 51: 1. e 2. g 3. d 4. h 5. a 6. b 7. c 8. f 9. i 10. j

Page 53: 1. b 2. b 3. b 4. a 5. b 6. a. flee ing b. appear ance c. position ed d. stretch ed e. sub marine

Page 54: Water Birds



Page 56: 1. b 2. a 3. a 4. b 5. a. builds b. oxygen c. miniature d. tough e. emerges f. pebbles g. beady h. fastening i. doors j. bottom

Page 57: 1. dobson fly 2. lacewing 3. mantid 4. scorpion fly 5. water moth 6. moth 7. butterfly 8. skipper 9. beetle 10. weevil 11. ant 12. bee 13. wasp 14. gallfly 15. sawfly 16. gnat 17. mosquito 18. flea 19. frog 20. midge

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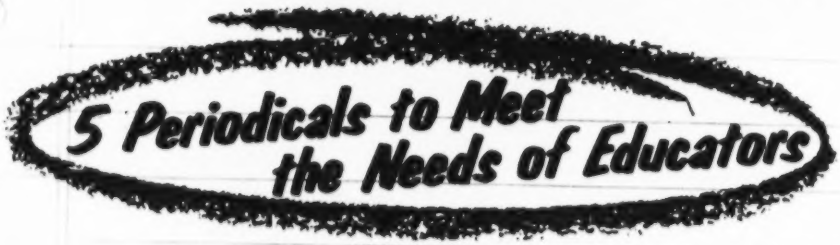

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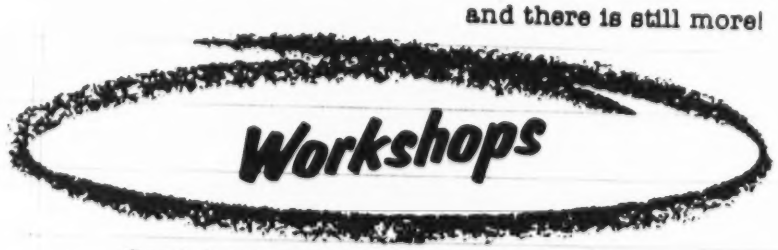

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